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Preface

INDIA, a Reference Annual is compiled and edited by Research and Reference Division of Ministry of Information and Broadcasting. This is the thirty fifth issue of the Annual which contains information on diverse aspects of India—its geographic and demographic features, polity, economy, social institutions, culture, plans and programmes and achievements.

This Annual is an established work of reference, particularly useful to scholars, students, officials, journalists, academicians, professionals and others. Each chapter has been revised and within the limits of time and space every effort has been made to provide latest information. However, in the nature of things a publication of this kind which takes considerable time from collection of material to final printing, can not be completely up-to-date and fully comprehensive. Broadly, text in this edition covers information up to December 1989, but facts and figures have been updated wherever found feasible. Chapter 'Diary of National Events' covers important happenings during 1989 from January to December.

Information in the Annual has been compiled from official and other authentic sources with cooperation of Central ministries/departments/state governmetns/union territory administrations and other government agencies.

In terms of the proviso laid by Survey of India, 'responsibility for correctness of internal details shown in maps rests with publisher'.

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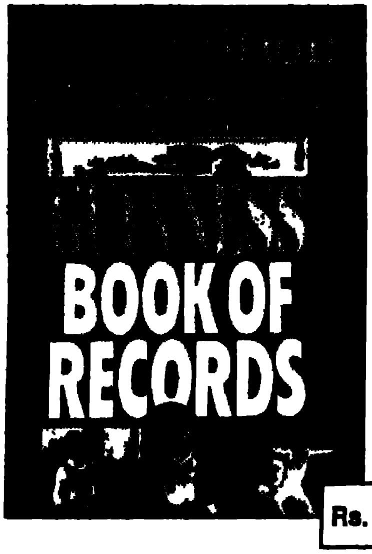

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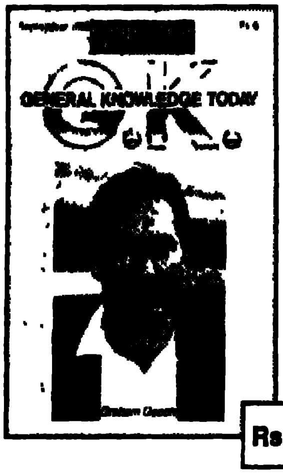

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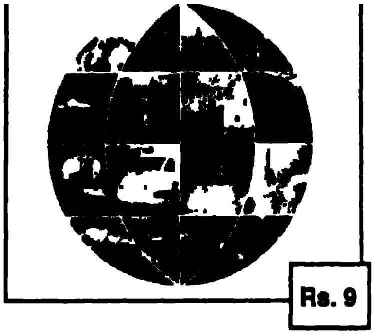

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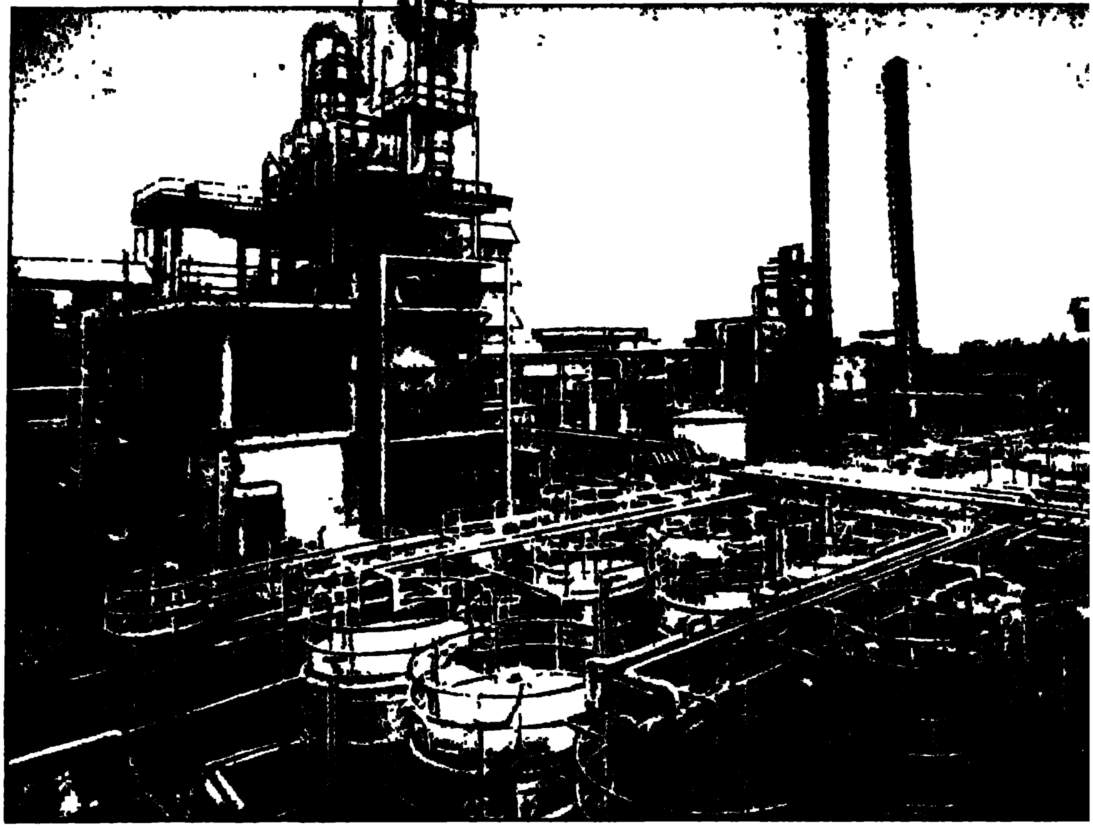

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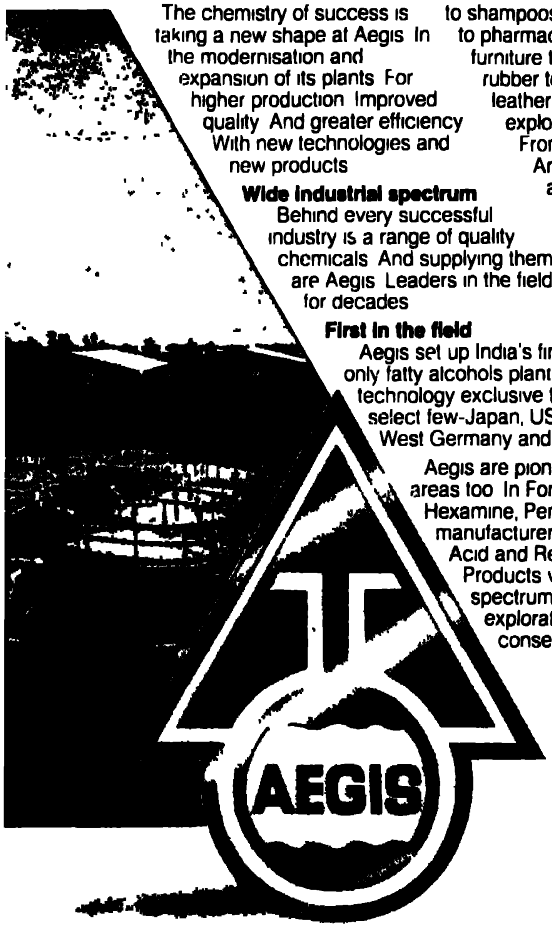

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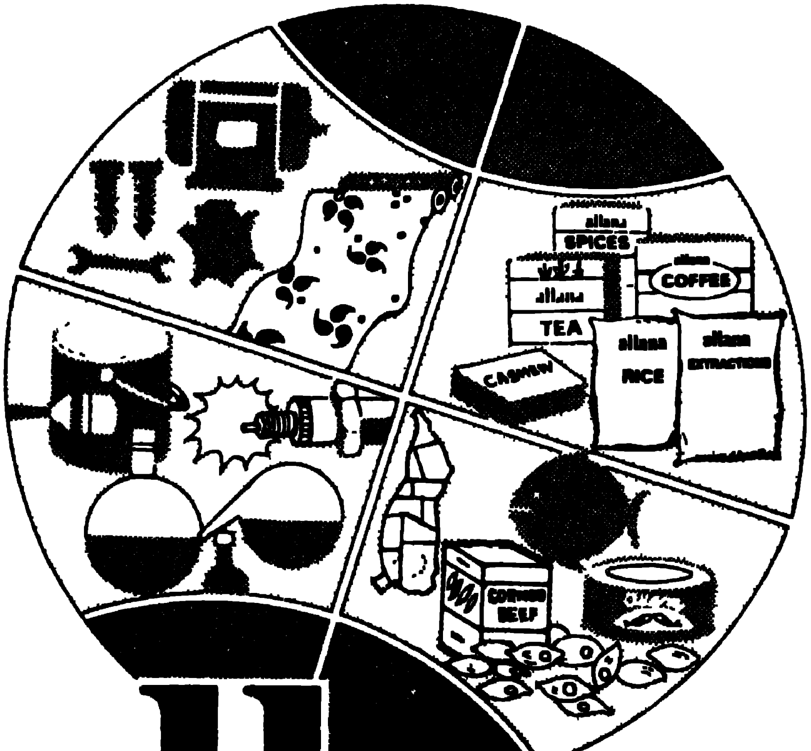

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KEY TO NUMERATION

1 lakh = One hundred thousand
10 lakh = 1 million
1 crore = 10 million
100 crore = 1 billion

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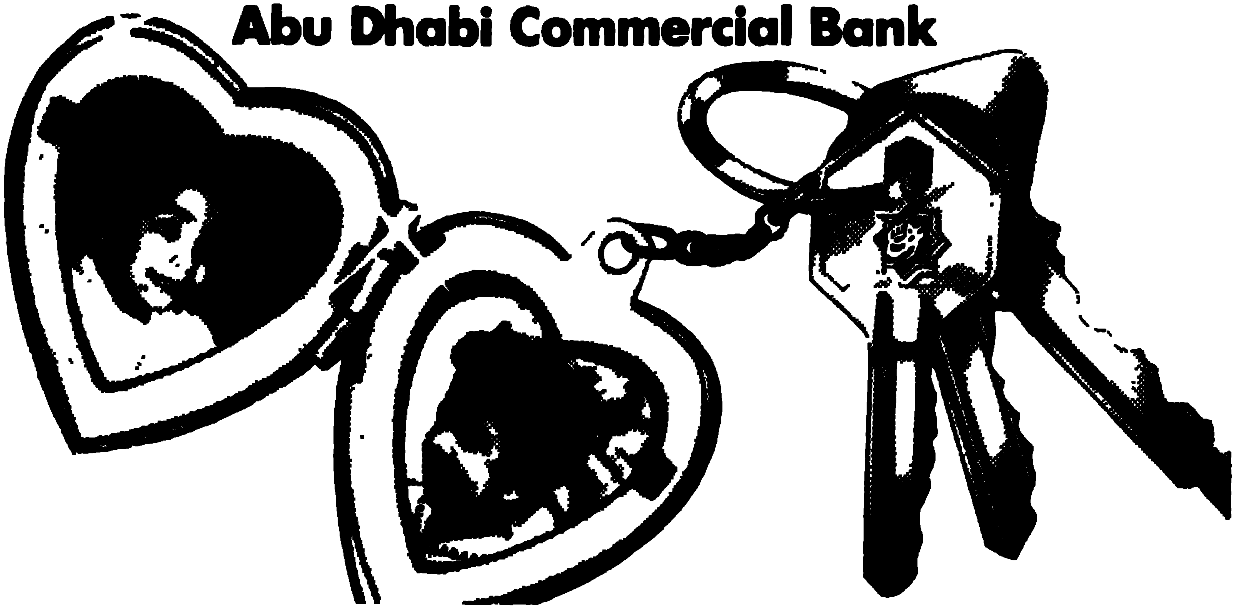

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DADRA AND NAGAR HAVELI - PROGRESS AT A GLANCE

Administrator	:	Shri Khurshed Alam Khan. (Governor of Goa)	Location: Near West Coast surrounded by State of Gujarat and Maharashtra.
Chief Secretary		Shri K.M. Sahani, IAS	
Collector		Shri R.K. Verma, IAS	

Geographical area : 491 Sq. Kms
Agriculture : 25533 Hectors.
Forest : 20311 Hectors.
Population : 1,03,676 (1981 Census)
Tribals : 78.82%
Schedule Caste · 1.95%

Liberated from the Portuguese· 2nd August, 1954
Integrated in the Indian Union 11th August, 1961

PROGRESS SINCE LIBERATION

	At the time of liberation as on 1954	As on 1987	As on March 1990 (31/3/1990)
	1	2	3
Primary and Middle Schools	05	160	161
High Schools	Nil	04	08
Higher Secondary Schools	Nil	03	03
Literacy rate	9.5%	26.70% (1981 Census)	26 70% (1981 Census)
Industrial Training Institute	Nil	01	01
School Hostels	01	14	14
Veterinary Hospitals	Nil	01	01
Veterinary Dispensaries	Nil	09	09
Hospitals, Primary Health Centres, Dispensaries, Sub-Centres	04	37	41
Schedule Banks	Nil	02	02
Branch Units (Dena Bank)	Nil	06	06
Co-Operative Banks	Nil	02	02
Total Bank Offices	Nil	08	09
Families benefited under IRDP	--	2739	4965
Families crossed above poverty line	Nil	1150	1608 (34.3%)
NREP/RLEGP (Lakh Mandays)	—	6.80	13 53

	1	2	3
NREP/RLEGP (Lakh Rupees expenditure)	—	114.00	228.14
Jawahar Rojgar Yojna (Lakh Mandays) (1989-90)	—	—	3.04
Jawahar Rojgar Yojna (Lakh Rupees) (1989-90)	—	—	89.58
Plantation (Lakh Trees)	N.A	141	325
No of Industries working	NIL	284	411
No of Industrial Estates	NIL	03	04
Area under Food Grains (Hectors)	4000	17885	22470
Foodgrains production (MT)	—	23800	34503
Land allotted to landless (Hectors)	—	2067	2375
No of persons benefited	—	2257	2764
Allotment of House site plots	—	1007	1175
Houses constructed and allotted to SC/ST	—	376	645
Road length (Kms)	—	325	341
Villages connected with all weather roads	—	55	56
No of villages electrified	NIL	66	66(100%)

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1 Land and the People

INDIA is one of the oldest civilisations with a kaleidoscopic variety and rich cultural heritage. It has achieved multi-faceted socio-economic progress during last 43 years of its independence. India has become self-sufficient in agricultural production and is now the tenth industrialised country in the world and the sixth nation to have gone into outer space to conquer nature for the benefit of the people. It covers an area of 32,87,263[1] sq km, extending from the snow-covered Himalayan heights to tropical rain forests of the south. As seventh largest country in the world, India is well-marked off from the rest of Asia by mountains and the sea, which give the country a distinct geographical entity. Bounded by the great Himalayas in north it stretches southwards and at the Tropic of Cancer, tapers off into the Indian Ocean between the Bay of Bengal on east and the Arabian Sea on west.

Lying entirely in the northern hemisphere, the mainland extends between latitudes 80°4' and 37°6' north, longitudes 68°7' and 97°25' east and measures about 3,214 km from north to south between the extreme latitudes and about 2,933 km from east to west between the extreme longitudes. It has a land frontier of about 15,200 km The total length of the coastline of the mainland, Lakshadweep Islands and Andaman and Nicobar Islands is 7,516 6 km.

PHYSICAL BACKGROUND

The countries having a common border with India are Afghanistan and Pakistan to north-west, China, Bhutan and Nepal to north, Burma to east and Bangladesh to east of West Bengal. Sri Lanka is separated from India by a narrow channel of sea formed by the Palk Strait and the Gulf of Mannar.

PHYSICAL FEATURES

The mainland comprises four regions, namely, the great mountain zone, plains of the Ganga and the Indus, the desert region and the southern Peninsula.

The Himalayas comprise three almost parallel ranges interspersed with large plateaus and valleys, some of which, like Kashmir and Kullu valleys, are fertile, extensive and of great scenic beauty. Some of the highest peaks in the world are found in these ranges. The high altitudes limit travel only to a few passes, notably the Jelep La and Nathu La on the main Indo-Tibet trade route, through the Chumbi Valley, north-east of Darjiling and Shipki La in the Sutlej Valley north-east of Kalpa (Kinnaur). The mountain wall extends over a distance of about 2,400 km with a varying depth of 240 to 320 km. In the east, between India and Burma and India and Bangladesh, hill ranges are much lower. Garo, Khasi, Jaintia and Naga Hills, running almost east-west, join the chain of Mizo and Rakhine Hills running north-south.

---

[1] Provisional as on 31 March 1982

The plains of the Ganga and the Indus, about 2,400 km long and 240 to 320 km broad, are formed by basins of three distinct river systems—the Indus, the Ganga and the Brahmaputra. They are one of the world's greatest stretches of flat alluvium and also one of the most densely populated areas on the earth. Between the Yamuna at Delhi and the Bay of Bengal, nearly 1,600 km away, there is a drop of only 200 metres in elevation.

The desert region can be divided into two parts--the great desert and the little desert. The great desert extends from the edge of the Rann of Kachchh beyond the Luni river northward. The whole of Rajasthan-Sind frontier runs through this. The little desert extends from the Luni between Jaisalmer and Jodhpur up to the northern wastes. Between the great and the little deserts lies a zone of absolutely sterile country, consisting of rocky land cut up by limestone ridges.

The Peninsular plateau is marked off from the plains of the Ganga and the Indus by a mass of mountain and hill ranges varying from 460 to 1,220 metres in height. Prominent among these are the Aravalli, Vindhya, Satpura, Maikala and Ajanta. The Peninsula is flanked on one side by the Eastern Ghats, where average elevation is about 610 metres and on the other by the Western Ghats, where it is generally from 915 to 1,220 metres, rising in places to over 2,440 metres. Between the Western Ghats and the Arabian Sea lies a narrow coastal strip, while between the Eastern Ghats and the Bay of Bengal there is a broader coastal area. The southern point of the plateau is formed by the Nilgiri Hills where the Eastern and the Western Ghats meet. The Cardamom Hills lying beyond may be regarded as a continuation of the Western Ghats.

GEOLOGICAL STRUCTURE

The geological regions broadly follow the physical features and may be grouped into three regions: the Himalayas and their associated group of mountains, the Indo-Ganga plain and the Peninsular Shield.

The Himalayan mountain belt to north and the Naga-Lushai mountain in east are the regions of mountain building movement. Most of this area, now presenting some of the most magnificent mountain scenery in the world, was under marine conditions about 60 crore years ago. In a series of mountain building movements commencing about seven crore years ago, the sediments and the basement rocks rose to great heights. The weathering and erosive agencies worked on these to produce the relief seen today. The Indo-Ganga plains are a great alluvial tract that separates the Himalayas in north from the Peninsula in south.

The Peninsula is a region of relative stability and rare seismic disturbances. Highly metamorphosed rocks of the earliest periods, dating back as far as 380 crore years occur in the area; the rest being covered by the coal-bearing Gondwana formations, lava flows belonging to the Deccan Trap formation and younger sediments.

RIVERS

Rivers in India may be classified as: (i) Himalayan rivers, (ii) Peninsular rivers, (iii) coastal rivers and (iv) rivers of the inland drainage basin.

The Himalayan rivers are perennial as they are generally snow-fed and have reasonable flow throughout the year. During the monsoon the Himalayas receive very heavy rainfall and the rivers discharge the maximum quantity of water causing frequent floods. The Peninsular rivers are generally rain-fed and, therefore, fluctuate in volume. A large number of the streams are non-perennial. The coastal streams, especially on the west coast are short in length and have limited catchment areas. Most of them are flashy and non-perennial. The streams of the inland drainage basin of western Rajasthan are few and far between. Most of them are of an ephemeral character. They drain towards the individual basins or salt lakes like the Sambhar or are lost in the sands, having no outlet to the sea. The Luni is the only river of this category that drains into the Rann of Kachchh.

The Ganga sub-basin which is a part of the larger Ganga-Brahmaputra-Meghana basin is the largest in India receiving waters from an area which comprises about one-quarter of the total area of the country. Its boundaries are well-defined by the Himalayas in north and the Vindhyas in south. The Ganga flows through Uttar Pradesh, Bihar and West Bengal in India and enters Bangladesh thereafter. It has two main headwaters in the Himalayas: the Bhagirathi and the Alkananda, the former rising from the Gangotri glacier at Gomukh and the latter from a glacier short of the Alkapuri glacier. The Ganga is joined by a number of the Himalayan rivers including the Yamuna, Ghaghra, Gomti, Gandak and Kosi. The westernmost river of the Ganga system is the Yamuna, which rises from the Yamnotri glacier and joins the Ganga at Allahabad. Among important rivers flowing north from central India into the Yamuna/Ganga are the Chambal, Betwa and Sone.

The Brahmaputra and the Barak flowing from east to west in north-eastern region are international rivers and have immense water resources potential which is still in the initial stages of development.

The Godavari in the southern Peninsula has the second largest river basin covering 10 per cent of the area of India. Next to it is the Krishna basin in the region, while the Mahanadi has the third largest basin. The basins of the Narmada in the uplands of the Deccan flowing to the Arabian Sea and of the Kaveri in south falling into the Bay of Bengal are about the same size, though with different character and shape.

Two other river systems, which are small but agriculturally important, are those of the Tapti in north and the Penner in south. These west coast rivers are of great importance as they contain as much as 14 per cent of the country's water resources while draining only 12 per cent of the land area.

CLIMATE

The climate of India may be broadly described as tropical monsoon type. There are four seasons. (i) winter (January-February), (ii) hot weather summer (March-May), (iii) rainy south-western monsoon period (June-September) and (iv) post-monsoon period, also known as north-east monsoon period in the southern Peninsula (October-December). India's climate is affected by two seasonal winds—the north-east monsoon and the south-west monsoon. The north-east monsoon commonly known as winter monsoon blows from land to sea whereas south-west monsoon known as summer monsoon blows from sea to land after crossing the Indian ocean, the Arabian sea and the Bay of Bengal. The south-west monsoon brings most of the rainfall during the year in the country. We can now predict rains successfully with developed models and trained manpower.

FLORA

With a wide range of climatic conditions from the torrid to the arctic, India has a rich and varied vegetation, which only few other countries of comparable size possess. India can be divided into eight distinct floristic regions, namely, the western Himalayas, the eastern Himalayas, Assam, the Indus plain, the Ganga plain, the Deccan, Malabar and the Andamans.

The western Himalayan region extends from Kashmir to Kumaon. Its temperate zone is rich in forests of *chir*, pine, other conifers and broad-leaved temperate trees. Higher up, forests of *deodar*, blue pine spruce and silver fir occur. The alpine zone extends from upper limit of the temperate zone to about 4,750 metres or even higher. The characteristic trees of this zone are high level silver fir, silver birch and junipers. The eastern Himalayan region extends from Sikkim eastwards and embraces Darjiling, Kurseong and the adjacent tract. The temperate zone has forests of oaks, laurels, maples, rhododendrons, alder and birch. Many conifers, junipers and dwarf willows also occur. The Assam region comprises the Brahmaputra and the Surma valleys and the intervening hill ranges. The vegetation is luxuriant with evergreen forests, occasional thick clumps of bamboos and tall grasses. The Indus plain region comprises the plains of Punjab, western Rajasthan and northern Gujarat.

It is dry and hot and supports natural vegetation. The Ganga plain region covers the area from the Aravalli ranges to Bengal and Orissa. A greater part of the area is alluvial plain and is under cultivation for wheat, sugarcane and rice. Only small areas support forests of widely differing types. The Deccan region comprises the entire tableland of the Indian Peninsula and supports vegetation of various kinds from scrub jungles to mixed deciduous forests. The Malabar region covers the excessively humid belt of mountain country running parallel to the west coast of the

Peninsula. This besides being rich in forest vegetation, produces important commercial crops, such as coconut, betelnut, pepper, coffee and tea. Rubber, cashewnut and eucalyptus trees have also been successfully introduced in some parts of this region. The Andaman region abounds in evergreen, semi-evergreen, mangrove, beach and diluvial forests. The Himalayan region extending from Kashmir to Arunachal Pradesh through Nepal, Sikkim, Bhutan, Meghalaya and Nagaland and the Deccan Peninsula are rich in endemic flora having a large number of plants which are not found elsewhere.

India is floristically very rich. It is estimated that there are about 45,000 species of plants including shrubs in the country. The vascular flora, which forms the conspicuous vegetation cover itself comprises 15,000 species. Of these more than 35 per cent is endemic and has so far not been reported anywhere in the world. The total plant wealth of the country includes not only the usual large flowered plants including flowering shrubs, but also a large number of non-flowering plants like ferns, liverworts, algae and fungi.

The flora of the country is being studied by Botanical Survey of India (BSI), Calcutta and some other institutions The publication *Flora of India* in the form of fascicles has been initiated by BSI and 18 fascicles have already been published. These have been compiled into a volume, *Flora of India* (vol.I). BSI has already brought out publications on the flora in Karnataka (2 vols.), Goa, Daman and Diu (2 vols.), Tamil Nadu (3 vols.), Arunachal Pradesh (3 vols), Meghalaya (2 vols.) and Tripura (1 vol.). It has also brought out publications on state and district flowering and non-flowering flora.

Ethnobotanical study deals with utilisation of plants and plant products by ethnic races. A scientific study of these plants has been made by BSI. A number of detailed ethnobotanical explorations were conducted in different tribal areas of the country. More than 800 plant species of ethnobotanical interest were collected and identified at different centres.

Owing to destruction of forests for agricultural, industrial and urban development, several Indian plants are facing extinction. BSI brings out an inventory of endangered plants called *Red Data Book*. Two volumes of the Book covering 430 species have already been published. Samples of some of these plants are preserved in botanical gardens and national parks. Collections of dried samples of these plants are preserved in the Central National Herbarium, the regional herbaria of BSI and in research and teaching institutions of the country.

FAUNA

Possessing a tremendous diversity of climate and physical conditions, India has a great variety of fauna, numbering about 75,000 known species. Of these 2,500 are fishes, 150 amphibians, 450 reptiles, 2,000 birds and 850 mammals. The remaining are the invertebrates, including protozoa, porifera, worms, insects, mollusc and crustaceans. Of these, 81 species of mammals, 47 of birds, 15 of reptiles, three of amphibians and a large number of butterflies, moths and beetles are listed as endangered.

The mammals include elephant, associated from time immemorial with Indian mythology and the splendour of her regal pageantry, *gaur* or Indian bison, Indian buffalo, *nilgai, choushingha* or four-horned antelope (unique to India), black buck or Indian antelope, *ghor-khur* or Indian wild ass (restricted to the Rann of Kachchh) and great one-horned rhinoceros (now confined to eastern India). There are also several species of deer, *viz.*, rare Kashmir stag, swamp deer, spotted deer, musk deer, *thamin* or brow-antlered deer (found in Manipur) and mouse deer.

Among the animals of prey, Indian lion is remarkable being the only species found outside Africa. Among other cats are the leopard, clouded leopard, snow leopard and various species of smaller size.

Several species of monkeys and *langurs* are common. The only ape found in India, the hoolock, is confined to the rain forests of eastern region. The lion-tailed macaque with a halo hair around the face is found in south.

The bird life is very rich and colourful. Several birds like pheasants, geese, ducks, *mynahs*, parakeets, pigeons, cranes, hornbills and sunbirds inhabit forests and wet lands.

Rivers and lakes harbour crocodiles and *gharials*, the latter being the only representative of crocodilian order in the world. The salt water crocodile is found along the eastern coast and in the Andaman and Nicobar Islands. A project for breeding crocodiles, started in 1974 has been instrumental in saving the crocodile from extinction. Twelve schemes are in operation in different states for breeding crocodiles.

The great Himalayan range has a very interesting fauna that includes wild sheep and goats, markhor, ibex, shrew and tapir. The lesser panda and the snow leopard are also found in the upper reaches of the mountains. The fauna of India is studied by Zoological Survey of India which publishes the *Fauna of India*. So far, 127 volumes have been published.

The Wild Life (Protection) Act, 1972 adopted by all states except Jammu and Kashmir (which has its own Act), governs the wild life conservation and protection of endangered species both inside and outside forest areas. Under this Act, trade in rare and endangered species has been banned. India is a signatory to the Convention on International Trade in Endangered Species of Wild Flora and Fauna. Under this, export or import of endangered species is subject to strict control and commercial exploitation of such species is prohibited.

There are presently 67 national parks, 394 wild life sanctuaries and 35 zoological gardens in the country, covering four per cent of the geographical area.

DEMOGRAPHIC BACKGROUND

CENSUS

The first ever census in India was completed in 1872. Since 1881, the census in India has been taken regularly every ten years. The latest in 1981 marked the completion of 110 years of decennial census. The enumeration was conducted between 9 February 1981 and 5 March 1981 (with reference point as the sunrise of 1 March 1981) throughout the country except Jammu and Kashmir and Assam. Due to unfavourable weather conditions in February-March 1981, census in Jammu and Kashmir was conducted from 20 April to 10 May 1981 (with reference point being the sunrise of 6 May 1981). Census could not be taken in Assam due to disturbed conditions prevailing there at that time.

POPULATION

According to the 1981 census, the total population of India (including the projected population of Assam) was 68,51,84,692. As compared to the 1971 census, it showed an increase of 25 per cent. Main cause of this increase in population is the fall in the death rate brought about by better health conditions, effective control of epidemics, efficient handling of famine conditions, general improvement and economic development. Population has gone up despite a fall in birth rate. Proportion of rural population to total population was 76.69 per cent and that of urban population 23.31 per cent. Proportion of main workers, who had worked for the major part of the year was 33.45 per cent. Male workers account for 51.62 per cent while female participation was 13.99 per cent. Table 1.1 shows population growth since 1911.

DENSITY

Average density of population per sq km in 1981 was 216. It varied considerably from state to state, being as high as 655 in Kerala and as low as 45 in Sikkim. Among the union territories, Delhi has the highest density of 4,194 persons per sq km. Arunachal Pradesh has the lowest *i.e.*, eight persons. The area and density of population in states and union territories are shown in table 1.2.

The density of population and percentage increase in population between 1921 and 1981 are shown in table 1.3.

SEX RATIO

In 1981, there were 35.4 crore males and 33.1 crore females. Thus for every 1,000 males, India has 934 females; the number declining from 972 in 1901 to 952 in 1931. Only Kerala has more women than men *i.e.*, 1,032 per thousand men. The lowest female ratio among the states is in Sikkim *i.e.*, 835 while the Andaman and Nicobar Islands among the union territories account for only 760.

LITERACY

For the purpose of census, a person is deemed as literate if he or she can read and write with understanding in any language. A person who can merely read, but can not write is not defined as literate. Children below five years are treated as illiterate.

TABLE 1.1 GROWTH OF POPULATION (1911-1981)

State/Union Territory	1911	1921	1931	1941	1951	1961	1971	1981
INDIA	25,20,93,390	25,13,21,213	27,89,77,238	31,86,60,580	36,10,88 090	43,92,34,771	54,81,59,652	68,51,84,692
States								
1. Andhra Pradesh	2,14,47,412	2,14,20,448	2,42,03,573	2 72,89,340	3,11,15,259	3,59,83,447	4,35,02,708	5,35,49,673
2 Assam[1]	38,48,617	46,36,980	55,60,371	66,94,790	80,28,856	1,08,37,329	1,46,25,152	1,98,96,843
3. Bihar	2,83,14,281	2,81,26,675	3,13,47,108	3,51,70,840	3,87,82,271	4,64,47,457	5,63,53,369	6,99,14,734
4 Gujarat	98,03,587	1,01,74,989	1,14,89,828	1,37,01,551	1,62,62,657	2,06,33,350	2 66,97,475	3,40,85,799
5 Haryana	41,74,690	42,55,905	45,59,931	52,72,845	56,73,614	75,90,543	1,00,36,808	1,29,22,618
6. Himachal Pradesh	18,96,944	19,28,206	20,29,113	22,63,245	23,85,981	28,12,463	34,60,434	42,80,818
7. Jammu and Kashmir[2]	22,92,535	24,24,359	26,70,208	29,46,728	32,53,852	35,60,976	46,16,632	59,87,389
8. Karnataka	1,35,25,251	1,33,77,599	1,46,32,992	1,62,55,368	1,94,01,956	2,35,86,772	2,92,99,104	3,71,35,714
9. Kerala	71,47,673	78,02,127	95,07,050	1,10,31,541	1,35,49,118	1,69,03,715	2,13,47,375	2,54,53,680
10. Madhya Pradesh	1,94,40,965	1,91,71,750	2,13,55,657	2,39,90,608	2,60,71,637	3,23,72,408	4,16,54,119	5,21,78,844
11. Maharashtra	2,14,74,523	2,08,49,666	2,39,59,300	2,68,32,758	3,20,02,564	3,95,53,718	5,04,12,235	6,27,84,171
12. Manipur	3,46,222	3,84,016	4,45,606	5,12,069	5,77,635	7,80,037	10,72,753	14,20,953
13. Meghalaya	3,94,005	4,22,403	4,80,837	5,55,820	6,05,674	7,69,380	10,11,699	13,35,819
14. Nagaland	1,49,038	1,58,801	1,78,844	1,89,641	2,12,975	3,69,200	5,16,449	7,74,930
15. Orissa	1,13,78,875	1,11,58,586	1,24,91,056	1,37,67,988	1,46,45,946	1,75,48,846	2,19,44,615	2,63,70,271
16. Punjab	67,31 510	71,52,811	80,12,325	96,00,236	91,60,590	1,11,35,069	1,35,51,060	1,67,88,915
17. Rajasthan	1,09,83 509	1,02,92,648	1,17,47,974	1,38,63,859	1,59,70,774	2,01,55,602	2,57,65,806	3,42,61,862
18. Sikkim	87 920	81,721	1,09,808	1,21,520	1,37,725	1,62,189	2,09,843	3,16,385
19. Tamil Nadu	2,09,02 616	2,16,28,518	2,34,72,099	2,62,67,507	3,01,19,047	3,36,86,953	4,11,99,168	4,84,08,077
20 Tripura	2,29 613	3,04,437	3,82,450	5,13,010	6,39,029	11,42,005	15,56,342	20,53,058
21 Uttar Pradesh	4,81,54 908	4,66,72,398	4,97,79,538	5,65,35,154	6,32,19,655	7,37,54,554	8,83,41,144	11,08,62,013
22 West Bengal	1,79,98,769	1,74,74,348	1,88,97,036	2,32,29,552	2,62,99,980	3,49,26,279	4,43,12,011	5,45,80,647

Union Territories

1. Andaman and Nicobar Islands	26,459	27,086	29,463	33,768	30,971	63,548	1,15,133	1,88,741
2. Arunachal Pradesh[3+5]	—	—	—	—	—	3,36,558	4,67,511	6,31,839
3. Chandigarh	18,437	18,133	19,783	22,574	24,261	1,19,881	2,57,251	4,51,610
4. Dadra and Nagar Haveli[4]	29,020	31,048	38,260	40,441	41,532	57,963	74,170	1,03,676
5. Delhi	4,13,851	4,88,452	6,36,246	9,17,939	17,44,072	26,58,612	40,65,698	62,20,406
6. Goa[5], Daman and Diu[4]	5,19,222	5,00,904	5,41,710	5,83,736	5,96,059	6,26,667	8,57,771	10,86,730
7. Lakhadweep	14,555	13,637	16,040	18,355	21,035	24,108	31,810	40,249
8. Mizoram[5]	91,204	98,406	1,24,404	1,52,786	1,96 202	2,66,063	3,32,390	4,93,757
9. Pondicherry[4]	2,57,179	2,44,156	2,58,628	2,85,011	3,17,253	3,69,079	4,71,707	6,04,471

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1. The 1981 population of Assam is based on projections
2. The population of Jammu and Kashmir for 1951 has been taken to be the arithmetic mean of 1941 and 1961 population The population of the state for 1941 and earlier census has been adjusted to exclude those areas currently under the illegal occupation of Pakistan and China Latter figures exclude the population of such areas
3. Censused for the first time in 1961
4. Population figures for Dadra and Nagar Haveli and Goa, Daman and Diu, for 1911, 1941 and 1951 have been assumed to be the same as in 1910, 1940 and 1950 respectively Similarly, figure for Pondicherry for 1951 has been assumed to be the same as in 1948 The 1961 figures for Goa, Daman and Diu relate to the census taken by the Portuguese authorities with reference date as 15 December 1960, figures for Dadra and Nagar Haveli relate to 1961 census with reference date as 1 March 1962
5. Arunachal Pradesh and Mizoram attained statehood on 20 February 1987 and Goa attained statehood on 30 May 1987

TABLE 1.2 AREA AND DENSITY OF POPULATION

	Area in sq km (000)	Population	Density of population per sq km
ALL INDIA[1]	3287.3[2]	68,51,84,692	216[3]
States			
1. Andhra Pradesh	275.1[5]	5,35,49,673	195
2. Arunachal Pradesh	83.7[5]	6,31,839	8
3. Assam[4]	78.4	1,98,96,843	254
4. Bihar	173.9[5]	6,99,14,734	402
5. Goa	3.7	10,07,749	272
6. Gujarat	196.0[5]	3,40,85,799	174
7. Haryana	44.2[5]	1,29,22,618	292
8. Himachal Pradesh	55.7	42,80,818	77
9. Jammu and Kashmir[1]	222.2[5]	59,87,389	59[3]
10. Karnataka	191.8	3,71,35,714	194
11. Kerala	38.9[5]	2,54,53,680	655
12. Madhya Pradesh	443.4[5]	5,21,78,844	118
13. Maharashtra	307.7[5]	6,27,84,171	204
14. Manipur	22.3	14,20,953	64
15. Meghalaya	22.4[5]	13,35,819	60
16. Mizoram	21.1	4,93,757	23
17. Nagaland	16.6	7,74,930	47
18. Orissa	155.7	2,63,70,271	169
19. Punjab	50.4	1,67,88,915	333
20. Rajasthan	342.2	3,42,61,862	100
21. Sikkim	7.1	3,16,385	45
22. Tamil Nadu	130.1[5]	4,84,08,077	372
23. Tripura	10.5	20,53,058	196
24. Uttar Pradesh	294.4[5]	11,08,62,013	377
25. West Bengal	88.8[5]	5,45,80,647	615
Union Territories			
1. Andaman and Nicobar Islands	8.3	1,88,741	23
2. Chandigarh	0.1	4,51,610	3,961
3. Dadra and Nagar Haveli	0.5	1,03,676	211
4. Daman and Diu	0.11	78,981	718
5. Delhi	1.5	62,20,406	4,194
6. Lakshadweep	.03	40,249	1,258
7. Pondicherry	0.5	6,04,471	1,229

1. The figure excludes population of areas under unlawful occupation of Pakistan and China where census could not be taken.
2. The total area of the country represents provisional Geographical Areas as on 31 March 1982, supplied by the Survey of India. The area includes 78,114 sq km under illegal occupation of Pakistan, 5,180 sq km illegally handed over by Pakistan to China and 37,555 sq km under illegal occupation of China in Ladakh district.
3. The density has been worked out on a comparable data.
4. Projected figures for 1981.
5. The area figures are provisional.

TABLE 1.3 DENSITY AND INCREASE IN POPULATION

Year	Density per sq km	Decade	Percentage increase in population
1901	77	—	—
1911	82	1901–11	+ 5.8
1921	81	1911–21	− 0.3
1931	90	1921–31	+ 11.0
1941	103	1931–41	+ 14.2
1951	117	1941–51	+ 13.3
1961	142	1951–61	+ 21.5
1971	177[1]	1961–71	+ 24.8
1981[2]	216[1]	1971–81	+ 25.0

1. Density has been worked out on a comparable data.
2. 1981 figures have been worked out after including projected figures for Assam.

Literacy rates would be more meaningful if one were to exclude the population in the age group 0-4 from the total population. However, at this stage, this information is not available since it would only be generated through further tabulations. Therefore, the entire population is being taken into account, including the population in the age group 0-4. According to the 1981 census, the literacy percentage was 36.23. Of this 46.89 per cent of males and 24.82 per cent of females were literate. Table 1.4 presents the literacy rates in the country. In working out these rates for 1981, the population of Assam has been excluded. The 1951 rates exclude Jammu and Kashmir.

TABLE 1.4 LITERACY RATE FOR 1,000 BY SEX

Year	Males	Females	Persons
1901	98	7	54
1911	106	11	59
1921	122	18	72
1931	156	29	95
1941	249	73	161
1951	250	79	167
1961	344	130	240
1971	395	187	295
1981	469	248	362

The steady improvement in the proportion of literates among both males and females is apparent from table 1.5. In particular, the improvement in case of females is noteworthy. However, nearly half the males and three-fourth of the females are still illiterate. Number of illiterates is nearly 64 per cent of the total population.

TABLE 1.5 POPULATION, NUMBER OF LITERATES AND LITERACY RATES FOR 1981

	1981								
	POPULATION			LITERATES			LITERATES TO TOTAL POPULATION		
	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
INDIA[1]	66,52,87,849	34,39,30,423	32,13,57,426	24,10,31,849,	16,12,85,568	7,97,46,281	36 23	46 89	24.82
States									
1. Andhra Pradesh	5,35,49,673	2.71,08,922	2,64,40,751	1,60,34,818	1,06,42,377	53,92,441	29 94	39 26	20.39
2. Assam[1]	—	—	—	—	—	—	—	—	—
3. Bihar	6,99,14,734	3,59,30,560	3,39,84,174	1,83,21,004	1,36,91,472	46,29,532	26 20	38.11	13 62
4. Gujarat	3,40,85,799	1,75,52,640	1,65,33,159	1,48,95,844	95,55,269	53,40,575	43 70	54 44	32 30
5. Haryana	1,29,22,618	69,09,938	60,12,680	46,69,898	33,30,658	13,39,240	36 14	48.20	22 27
6. Himachal Pradesh	42,80,818	21,69,931	21,10,887	18,18,287	11,54,281	6,64,006	42 48	53 19	31 46
7. Jammu and Kashmir[1]	59,87,389	31,64,660	28,22,729	15,96,776	11,48,569	4,48,207	26 67	36.29	15 88
8. Karnataka	3,71,35,714	1,89,22,627	1,82,13,087	1,42 82,717	92,36,276	50,46,441	38 46	48 81	27 71
9 Kerala	2,54,53,680	1,25,27,767	1,29,25,913	1,79,24,732	94,28,092	84,96,640	70.42	75.26	65 73
10. Madhya Pradesh	5,21,78,844	2,68,86,305	2,52,92,539	1,45,44,568	1,06,17,302	39,27,266	27 87	39 49	15 53
11. Maharashtra	6,27,84,171	3,24,15,126	3,03,69,045	2,96,20,806	1,90,56,503	1,05,64,303	47 18	58.79	34 79
12. Manipur	14,20,953	7,21,006	6,99,947	5,87,618	3,84,231	2,03,387	41 35	53.29	29 06
13 Meghalaya	13,35,819	6,83,710	6,52,109	4,55,191	2 59,024	1,96,167	34 08	37.89	30 08
14. Nagaland	7,74,930	4,15,910	3,59,020	3,29,878	2,08,195	1,21,683	42 57	50.06	33 89
15. Orissa	2,63,70,271	1,33,09,786	1,30,60,485	90,27,205	62,68,643	27,58,562	34 23	47 10	21 12
16. Punjab	1,67,88,915	89,37,210	78,51,705	68,60,349	42,14,878	26,45,471	40 86	47 16	33 69
17. Rajasthan	3,42,61,862	1,78,54,154	1,64,07,708	83,54,117	64,81,156	18,72,961	24 38	36.30	11 42
18. Sikkim	3,16,385	1,72,440	1,43,945	1,07,738	75,779	31,959	34 05	43 95	22.20
19 Tamil Nadu	4,84,08,077	2,44,87,624	2,39,20,453	2,26,37,659	1,42,67,331	83,70,328	46.76	58.26	34 99
20. Tripura	20,53,058	10,54,846	9,98,212	8,64,799	5,45,401	3,19 398	42 12	51 70	32 00
21. Uttar Pradesh	11,08,62,013	5,88,19,276	5,20,42,737	3,01,05,260	2 27,98,451	73,06,809	27 16	.38 76	14 04
22. West Bengal	5,45,80,647	2,85,60,901	2 60,19,746	2,23,44,153	1,44,73,045	78,71,108	40 94	50 67	30 25

Union Territories									
1. Andaman and Nicobar Islands	1 88,741	1,07,261	81,480	97,321	62,983	34,338	51 56	58 72	42 14
2. Arunachal Pradesh[2]	6,31,839	3,39,322	2,92,517	1,31,333	98,211	33,122	20 79	28 94	11 32
3. Chandigarh	4,51,610	2,55,278	1,96,332	2,92,580	1,76,130	1,16,450	64 79	69 00	59 31
4. Dadra and Nagar Haveli	1,03,676	52,515	51,161	27,655	19,072	8,583	26 67	36 32	16 78
5. Delhi	62,20,406	34,40,081	27,80,325	38,28,326	23,52,883	14,75,443	61 54	68 40	53 07
6. Goa[2], Daman and Diu	10,86,730	5,48,450	5,38,280	6,15,752	3,59,731	2,56,021	56 66	65 59	47 56
7. Lakshadweep	40,249	20,377	19,872	22,165	13,293	8,872	55 07	65 24	44 65
8. Mizoram[2]	4,93,757	2,57,239	2,36,518	2,95,685	1,65,812	1,29,873	59 88	64 46	54 91
9. Pondicherry	6,04,471	3,04,561	2,99,910	3,37,615	2,00,500	1,37,095	55 85	65 84	45 71

1. The figures for India and Jammu and Kashmir exclude the population of area under unlawful occupation of Pakistan and China Figures also exclude the population of Assam where census could not be held in 1981
2. Arunachal Pradesh and Mizoram attained statehood on 20 February 1987 and Goa attained statehood on 30 May 1987

RELIGIONS

Table 1.6 shows the comparative figures of total population and related percentage of major religions and persuations according to 1971 and 1981 census.

TABLE 1.6 POPULATION OF MAJOR RELIGIONS AND PERSUASIONS

	1971		1981[1+2]	
Religious Community	Population	Percentage to total Population	Population	Percentage to total Population
Hindus	45,34,36,630	82.72	54,97,24,717	82.63
Muslims	6,14,18,269	11.20	7,55,71,514	11.36
Christians	1,42,25,045	2.59	1,61,74,498	2.43
Sikhs	1,03,78,891	1.89	1,30,78,146	1.96
Buddhists	38,74,942	0.71	47,19,900	0.71
Jains	26,04,837	0.48	31,92,572	0.48
Other Persuasions[3]	21,84,955	0.40	27,66,285	0.42
Religion not stated	36,083	0.01	60,217	0.01

1. The 1981 figures are based on the information on religion of heads of households tabulated through the household schedule
2. Excludes Assam.
3. Other persuasions relate to remaining religions as given by respondents

LANGUAGE

A number of languages and dialects are spoken in India. Of these, 15 languages have been specified in the Eighth Schedule of the Constitution. These are: Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Malayalam, Marathi, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu and Urdu.

BIRTH AND DEATH RATES

According to a Sample Registration System[1] birth and death rates for 1988 (provisional) were:

(1) Birth rate—31.3 per 1,000 and
(2) Death rate—10.9 per 1,000 population.

The expectation of life at birth was 55.4 years for males and 55.7 years for females during 1981-85.

The Registration of Births and Deaths Act, 1969 regulates and unifies registration of births and deaths. State rules approved by Government, have been notified by states and union territories under Section 30 of the Act.

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[1] The Sample Registration System was introduced by the Registrar General, India, in 1964-65.

TOWNS AND VILLAGES

In 1981, there were 3,949 towns[1] besides 5,57,137 inhabited and 48,087 uninhabited villages in the country. Among states, Uttar Pradesh had the largest number of towns (704) followed by Tamil Nadu (434), Madhya Pradesh (327) and Maharashtra (307). Nagaland had 7, Sikkim 8, Tripura 10, Himachal Pradesh 47, Jammu and Kashmir 58 and Haryana 81 towns. The Andaman and Nicobar Islands and Dadra and Nagar Haveli had one town each, while Delhi had 30. Uttar Pradesh had 1,12,566 inhabited and 11,680 uninhabited villages. Madhya Pradesh had 71,352 and Sikkim 440 inhabited villages. Kerala and Arunachal Pradesh had no uninhabited village.

There were 12 cities with a population of 10 lakh and above recorded in 1981. These are Calcutta, Greater Bombay, Delhi, Madras, Hyderabad, Ahmadabad, Bangalore, Kanpur, Pune, Nagpur, Lucknow and Jaipur.

The country had 441 districts in 1987.

SCHEDULED CASTES AND TRIBES

According to the 1981 census, population of scheduled castes and scheduled tribes was 10,47,54,623 and 5,16,28,638 respectively. Table 1.7 shows the figures of scheduled castes/scheduled tribes. About 23.51 per cent of the country's population comprised scheduled castes and scheduled tribes

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[1] An urban area is: (a) All statutory towns, *i.e.*, all places with a municipal corporation, municipal board, cantonment board or notified town area, etc. and (b) All other places having: (i) a minimum population of 5,000; (ii) at least 75 per cent of male working population engaged in non-agricultural pursuits, and (iii) a density of population of at least 400 persons per sq km. The inhabited and uninhabited villages stand for their literal meaning.

TABLE 1.7 POPULATION OF SCHEDULED CASTES AND TRIBES 1981 CENSUS

	Scheduled Castes	Scheduled Tribes
INDIA[1+2]	10,47,54,623	5,16,28,638
States		
1. Andhra Pradesh	79,61,730	31,76,001
2. Arunachal Pradesh	2,919	4,41,167
3. Assam[1]	—	—
4. Bihar	1,01,42,368	58,10,867
5. Goa	20,619	690
6. Gujarat	24,38,297	48,48,586
7. Haryana[5]	24,64,012	—
8. Himachal Pradesh	10,53,958	1,97,263
9. Jammu and Kashmir[2+5]	4,97,363	—
10. Karnataka[4]	55,95,353	18,25,203
11. Kerala	25,49,382	2,61,475
12. Madhya Pradesh	73,58,533	1,19,87,031
13. Maharashtra	44,79,763	57,72,038

TABLE 1.7 (*Continued*)

		Scheduled Castes	Scheduled Tribes
14.	Manipur	17,753	3,87,977
15.	Meghalaya	5,492	10,76,345
16.	Mizoram	135	4,61,907
17	Nagaland[3]	—	6,50,885
18	Orissa	38,65,543	59,15,067
19.	Punjab[5]	45,11,703	—
20.	Rajasthan	58,38,879	41,83,124
21	Sikkim	18,281	73,623
22	Tamil Nadu	88,81,295	5,20,226
23.	Tripura	3,10,384	5,83,920
24.	Uttar Pradesh	2,34,53,339	2,32,705
25	West Bengal	1,20,00,768	30,70,672
Union Territories			
1	Andaman and Nicobar Islands[3]	—	22,361
2	Chandigarh[5]	63,621	—
	Dadra and Nagar Haveli	2,041	81,714
	Daman and Diu	2,813	10,031
	Delhi[5]	11,21,643	—
	Lakshdweep[3]		37,760
	Pondicherry[5]	96,636	

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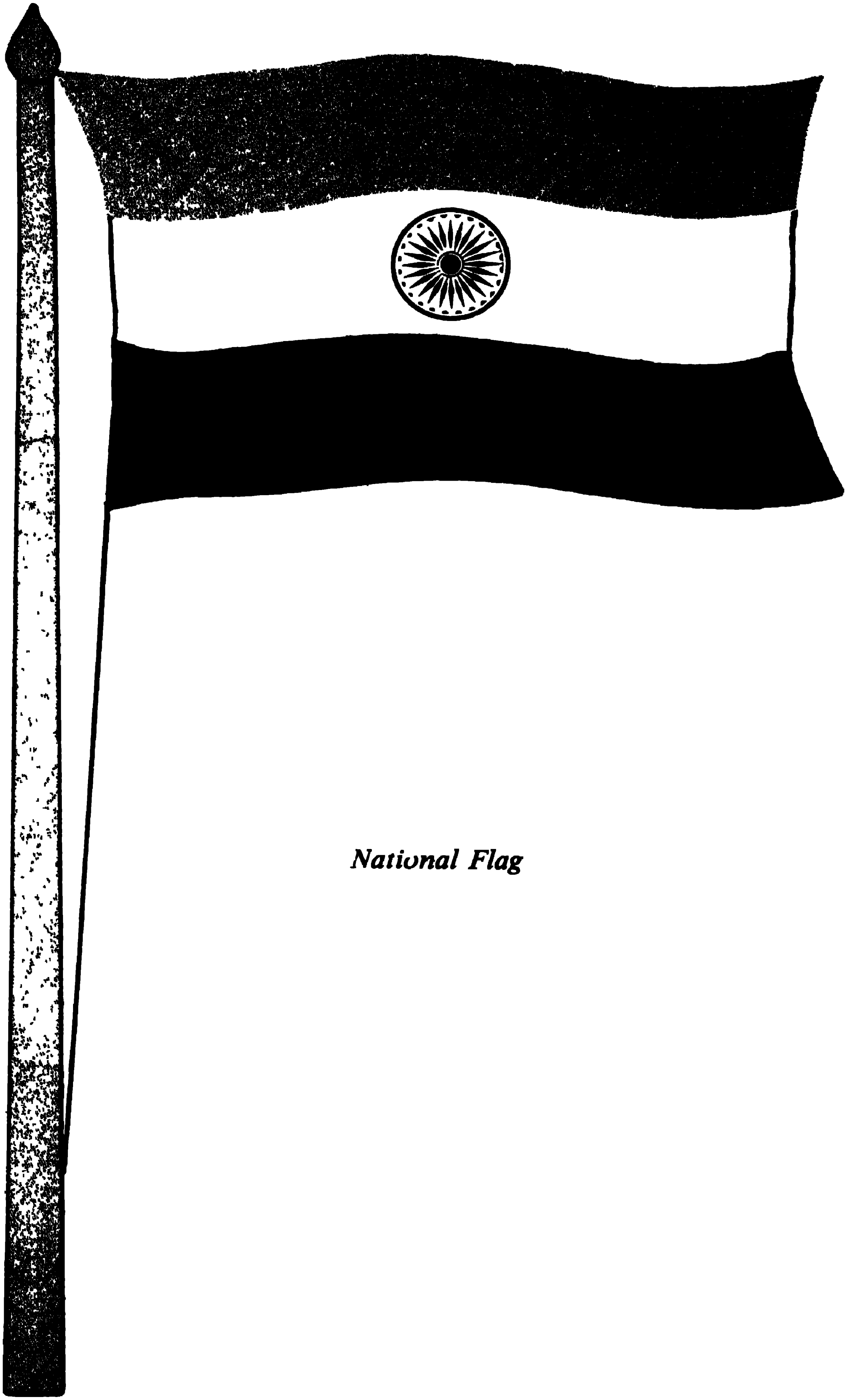
1 Excludes Assam where the census could not be held owing to disturbed conditions

2 The figures exclude population of areas under unlawful occupation of Pakistan and China.

3. No caste was scheduled by the President for Nagaland, Andaman and Nicobar Islands and Lakshadweep.

4. The scheduled tribe population figure of Karnataka would appear to include high returns relating to certain communities with nomenclatures similar to those included in the list of scheduled tribes consequent on the removal area restrictions

5. No tribe has been scheduled by the President for Haryana, Jammu and Kashmir, Punjab and the Union Territories of Chandigarh, Delhi and Pondicherry



National Flag

सत्यमेव जयते

National Emblem

2 National Symbols

NATIONAL FLAG

NATIONAL flag is horizontal tricolour of deep saffron (*Kesari*) at the top, white in the middle and dark green at the bottom in equal proportion. Ratio of the width of the flag to its length is two to three. In the centre of the white band is a navy blue wheel, which represents the *Charkha*. Its design is that of the wheel which appears on the abacus of the Sarnath Lion Capital of Ashoka. Its diameter approximates to the width of the white band and it has 24 spokes.

Design of the national flag was adopted by the Constituent Assembly of India on 22 July 1947. Its use and display are regulated by a code.

STATE EMBLEM

State emblem is an adaptation from the Sarnath Lion Capital of Ashoka. In the original, there are four lions, standing back to back, mounted on an abacus with a frieze carrying sculptures in high relief of an elephant, a galloping horse, a bull and a lion separated by intervening wheels over a bell-shaped lotus. Carved out of a single block of polished sandstone, the capital is crowned by the Wheel of the Law (*Dharma Chakra*).

In the state emblem adopted by Government of India on 26 January 1950, only three lions are visible, the fourth being hidden from view. The wheel appears in relief in the centre of the abacus with a bull on right and a horse on left and the outlines of other wheels on extreme right and left. The bell-shaped lotus has been omitted. The words *Satyameva Jayate* from *Mundaka Upanishad*, meaning 'Truth Alone Triumphs,' are inscribed below the abacus in the Devanagari script.

NATIONAL ANTHEM

The song *Jana-gana-mana,* composed by Rabindranath Tagore, was adopted by the Constituent Assembly as the national anthem of India on 24 January 1950. It was first sung on 27 December 1911 at the Calcutta session of Indian National Congress. The complete song consists of five stanzas. First stanza constitutes full version of the national anthem. It reads:

Jana-gana-mana-adhinayaka, jaya he
Bharata-bhagya-vidhata.
Punjaba-Sindhu-Gujrata-Maratha-

Dravida-Utkala-Banga
Vindhya-Himachala-Yamuna-Ganga
Uchchala-Jaladhi-taranga.
Tava shubha name jage,
Tava shubha asisa mage,
Gahe tava jaya-gatha,
Jana-gana-mangala-dayaka jaya he
Bharata-bhagya-vidhata.
Jaya he, jaya he, jaya he,
Jaya jaya jaya, jaya he!

Playing time of the full version of the national anthem is approximately 52 seconds. A short version consisting of first and last lines of the stanza (playing time approximately 20 seconds) is also played on certain occasions. The following is Tagore's English rendering of this stanza:

Thou art the ruler of the minds of all people,
dispenser of India's destiny.
Thy name rouses the hearts of Punjab, Sind, Gujarat and Maratha,
Of the Dravida and Orissa and Bengal;
It echoes in the hills of the Vindhyas and Himalayas,
mingles in the music of Jamuna and Ganges
and is chanted by the waves of the Indian Sea.
They pray for thy blessings and sing thy praise.
The saving of all people waits in thy hand,
thou dispenser of India's destiny.
Victory, victory, victory to thee.

NATIONAL SONG

The song *Vande Mataram*, composed by Bankimchandra Chatterji, was a source of inspiration to people in their struggle for freedom. It has an equal status with *Jana-gana-mana*. The first political occasion when it was sung, was the 1896 session of Indian National Congress. The following is the text of its first stanza:

Vande Mataram!
Sujalam, suphalam, malayaja shitalam,
Shasyashyamalam, Mataram!
Shubhrajyotsna pulakitayaminim,
Phullakusumita drumadala shobhinim,
Suhasinim sumadhura bhashinim,
Sukhadam varadam, Mataram!

English translation of the stanza rendered by Sri Aurobindo in prose[1] is:

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[1] As published in volume 8 of Sri Aurobindo Birth Centenary Library Popular Editon 1972.

I bow to thee, Mother,
richly-watered, richly-fruited,
cool with the winds of the south,
dark with the crops of the harvests,
the Mother!
Her nights rejoicing in the glory of the moonlight,
her lands clothed beautifully with her trees in flowering bloom,
sweet of laughter, sweet of speech,
the Mother, giver of boons, giver of bliss.

NATIONAL CALENDAR

National calendar based on the *Saka* era with *Chaitra* as its first month and a normal year of 365 days was adopted from 22 March 1957 along with Gregorian calendar for the following official purposes: (i) Gazette of India, (ii) news broadcasts by All India Radio, (iii) calendars issued by Government of India and (iv) government communications addressed to members of public.

Dates of national calendar have a permanent correspondence with dates of Gregorian calendar: 1 Chaitra falling on 22 March normally and on 21 March in leap year.

NATIONAL ANIMAL

The majestic tiger *Panthera tigris* (linnaeus), national animal of India, has always been held in high esteem for its rich colour, illusive design and formidable power. Among carnivores, tiger is very gorgeous and attractive with roaring voice as symbol of power. Out of eight races of the species known the world over, Indian race is Royal Bengal Tiger. It is found throughout the country and also in Nepal, Bhutan and Bangladesh. To check the dwindling population of tigers in India, which came down to only 1,827 in 1972, Project Tiger was launched on I April 1973. Since then, its population is gradually increasing and it was estimated to be 4,230 in April 1986.

NATIONAL BIRD

Indian peacock *Pavo Cristatus* (linnaeus), national bird of India, is one of the most beautiful birds, particularly the males having glistening blue neck, breast, fan-shaped vest and long magnificent tail. Courtship dance of the male by fanning up the tail before the female is most spectacular. From time immemorial, the bird has found a profound place in Indian literature, folklore and legends.

Peacock is widely found in the country in south and east of Indus, Jammu and Kashmir, Assam, south of Mizoram and the whole of Indian Peninsula. It is fully protected under the Indian Wild Life (Protection) Act, 1972.

3 The Polity

INDIA, a union of states, is a Sovereign Socialist Secular Democratic Republic with a parliamentary system of government. The Republic is governed in terms of the Constitution, which was adopted by Constituent Assembly on 26 November 1949 and came into force on 26 January 1950.

The Constitution which envisages a parliamentary form of government is federal in structure with unitary features. President of India is constitutional head of executive of the Union. Article 74(1) of the Constitution provides that there shall be a Council of Ministers with Prime Minister as head to aid and advise President who shall, in exercise of his functions, act in accordance with such advice. Real executive power thus vests in Council of Ministers with Prime Minister as head. Council of Ministers is collectively responsible to the House of the People (Lok Sabha). Similarly, in states, Governor is head of executive, but it is the council of ministers with chief minister as head in whom real executive power vests. Council of ministers of a state is collectively responsible to legislative assembly.

The Constitution distributes legislative power between Parliament and state legislatures and provides for vesting of residual powers in Parliament. Power to amend the Constitution also vests in Parliament.

The Constitution has provision for independence of judiciary, Comptroller and Auditor-General, public service commissions and Chief Election Commissioner.

THE UNION AND ITS TERRITORY

India comprises 25 states and seven union territories. States are: Andhra Pradesh, Assam, Arunachal Pradesh, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal. Union territories are: Andaman and Nicobar Islands, Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Delhi, Lakshadweep and Pondicherry.

CITIZENSHIP

The Constitution provides for a single and uniform citizenship for whole of India. Every person who was at commencement of the Constitution (26 January 1950) domiciled in the territory of India: (a) was born in the territory of India or (b) either of whose parents was born in the territory of

India or (c) who had been ordinarily resident in the territory of India for not less than five years immediately preceding that date, became a citizen of India. The Citizenship Act, 1955 laid down provisions governing acquisition and termination of citizeship after the commencement of the Constitution, and the Citizenship Rules, 1956 as amended from time to time. Mode of acquisition of citizenship by birth (a person born within the territory of India on or after 26 January 1950 but before 30 June 1987 and on or after 1 July 1987 if either of his parents is a citizen of India at the time of his birth, is a citizen of India), descent, registration, naturalisation and incorporation of territory. The Act also provides for loss of citizenship by renunciation, termination and deprivation.

FUNDAMENTAL RIGHTS

The Constitution offers all citizens, individually and collectively, some basic freedoms. These are guaranteed in the Constitution in form of six broad categories of Fundamental Rights which are justiciable. Articles 12 to 35 contained in Part III of the Constitution deal with Fundamental Rights. These are: (i) right to equality including equality before law, prohibition of discrimination on grounds of religion, race, caste, sex or place of birth and equality of opportunity in matters of employment; (ii) right to freedom of speech and expression; assembly; association or union; movement; residence; and right to practise any profession or occupation (some of these rights are subject to security of the State, friendly relations with foreign countires, public order, decency or morality); (iii) right against exploitation, prohibiting all forms of forced labour, child labour and traffic in human beings; (iv) right to freedom of conscience and free profession, practice and propagation of religion; (v) right of any section of citizens to conserve their culture, language or script and right of minorities to establish and administer educational institutions of their choice, and (vi) right to constitutional remedies for enforcement of Fundamental Rights.

FUNDAMENTAL DUTIES

By the 42nd Amendment of the Constitution, adopted in 1976, Fundamental Duties of citizens have also been enumberated. Article 51 'A' contained in Part IV A of the Constitution deals with Fundamental Duties. These enjoin upon a citizen, among other things, to abide by the Constitution, to cherish and follow noble ideals which inspired our national struggle for freedom, to defend the country and render national service when called upon to do so and to promote harmony and spirit of common brotherhood amongst all people of India transcending religious, linguistic and regional or sectional diversities.

DIRECTIVE PRINCIPLES OF STATE POLICY

The Constitution lays down certain Directive Principles of State Policy which though not justiciable, are 'fundamental in governance of the country' and it is 'the duty of the State to apply these principles in making laws'. These lay down that the State shall strive to promote welfare of people by securing and protecting as effectively as it may a social order in which justice–social, economic and political, shall inform all institutions of national life. The State shall direct its policy in such a manner as to secure the right of all men and women to an adequate means of livelihood, equal pay for equal work and within limits of its economic capacity and development, to make effective provision for securing the right to work, education and to public assistance in event of unemployment, old age, sickness and disablement or other cases of undeserved want. The state shall also endeavour to secure to workers a living wage, humane conditions of work, a decent standard of life and full involvement of workers in management of industries.

In economic sphere, the State is to direct its policy in such a manner as to secure distribution of ownership and control of material resources of community to subserve the common good and to ensure that operation of economic system does not result in concentration of wealth and means of production to common detriment.

Some of other important directives relate to provision of opportunities and facilities for children to develop in a healthy manner, free and compulsory education for all children up to the age of 14; promotion of educational and economic interests of scheduled castes, scheduled tribes and other weaker sections; organisation of village *panchayats;* separation of judiciary from executive; promulgation of a uniform civil code for whole country; protection of national momuments; promotion of justice on a basis of equal opportunity; provision of free legal aid; protection and improvement of environment and safeguarding of forests and wildlife of country, and promotion of international peace and security, just and honourable relations between nations, respect for international law, treaty obligations and settlement of international disputes by arbitration.

THE UNION

EXECUTIVE

The Union executive consists of President, Vice President and Council of Ministers with Prime Minister at the head to aid and advise President.

PRESIDENT

President is elected by members of an electoral college consisting of elected members of both Houses of Parliament and Legislative Assemblies of states in accordance with the system of proportional representation by means of single transferable vote. To secure uniformity among states *inter se* as well as parity between the states as a whole and the Union, suitable weightage is given to each vote. President must be a citizen of India, not less than 35 years of age and qualified for election as member of the Lok Sabha. His term of office is five years and he is eligible for re-election. His removal from office is to be in accordance with procedure prescribed in Article 61 of the Constitution. He may, by writing under his hand addressed to Vice President, resign his office.

Executive power of the Union is vested in President and is exercised by him either directly or through officers subordinate to him in accordance with the Constitution. Supreme Command of defence forces of the Union also vests in him. President summons, prorogues, addresses, sends messages to Parliament and dissolves the Lok Sabha; promulgates Ordinances at any time, except when both Houses of Parliament are in session; makes recommendations for introducing financial and money bills and gives assent to bills; grants pardons, reprieves, respites or remissions of punishment or suspends, remits or commutes sentences in certain cases. When there is a failure of constitutional machinery in a state, he can assume to himself all or any of the functions of the government of that state. President can proclaim emergency in the country if he is satisfied that a grave emergency exists whereby security of India or of any part of its territory is threatened whether by war or external aggression or armed rebellion.

VICE PRESIDENT

Vice President is elected by members of an electoral college consisting of members of both Houses of Parliament in accordance with the system of proportional representation by means of single transferable vote. He must be a citizen of India, not less than 35 years of age and eligible for election as a member of the Rajya Sabha. His term of office is five years and he is eligible for re-election. His removal from office is to be in accordance with procedure prescribed in Article 67(b).

Vice President is *ex-officio* Chairman of the Rajya Sabha and acts as President when the latter is unable to discharge his functions due to absence. illness or any other cause or till the election of a new President (to be held within six months) when a vacancy is caused by death, resignation or removal or otherwise of President. While so acting, he ceases to perform the function of the Chairman of the Rajya Sabha.

COUNCIL OF MINISTERS

There is a Council of Ministers headed by Prime Minister to aid and advise President in exercise of his functions. Prime Minister is appointed by President who also appoints other ministers on the advice of Prime Minister. The Council is collectively responsible to the Lok Sabha. It is the duty of Prime Minister to communicate to President all decisions of Council of Ministers relating to administration of affairs of the Union and proposals for legislation and information relating to them.

The Council of Ministers comprises ministers who are members of Cabinet, ministers of state (independent charge), ministers of state and deputy ministers.

LEGISLATURE

Legislature of the Union which is called Parliament, consists of President and two Houses, known as Council of States (Rajya Sabha) and House of the People (Lok Sabha). Each House of Parliament has to meet within six months of its previous sitting. A joint sitting of two Houses can be held in certain cases.

RAJYA SABHA

The Constitution provides that the Rajya Sabha shall consist of not more than 250 members of whom 12 having special knowledge or practical experience in literature, science, art and social service, shall be nominated by President and rest shall be representatives of states and union territories. Elections to the Rajya Sabha are indirect; those representing states are elected by elected members of legislative assemblies of states concerned in accordance with the system of proportional representation by means of single transferable vote and those representing union territories are chosen in such a manner as Parliament may by law prescribe. The Rajya Sabha is not subject to dissolution, one third of its members retiring on expiry of every second year.

Membership of the Rajya Sabha is 245. Of these, 233 represent states and union territories and 12 members being specialists in literature, science, art and social service nominated by President.

LOK SABHA

The Lok Sabha is composed of representatives of people chosen by direct election on the basis of adult suffrage. Maximum strength of the House envisaged by the Constitution is now 552 (530 members to represent states, 20 to represent union territories and not more than two members of Anglo-Indian community to be nominated by President, if, in his opinion, that community is not adequately represented in the House). Total elective membership of the Lok Sabha is distributed among states in such a way that ratio between number of seats allotted to each state and population of the state is, as far as practicable, the same for all states. The Lok Sabha at present consists of 545 members. Of these, 530 members are directly elected from 25 states and 13 from seven union territories while two are nominated by President to represent Anglo-Indian community.

Allocation of seats in the present Lok Sbha is based on 1971 census and, under the 42nd Amendment of the Constitution (1976), will continue to be so based until figures of the first census taken after 2000 AD become available.

Term of the Lok Sabha, unless sooner dissolved, is five years from the date appointed for its first meeting. However, while a proclamation of emergency is in operation, this period may be extended by Parliament by law for a period not exceeding one year at a time and not extending, in any case, beyond a period of six months after the proclamation has ceased to operate. Nine Lok Sabhas have been constituted so far. Term of each Lok Sabha and its Speaker(s) is given in table 3.1.

Statewise allocation of seats in two Houses and party position in the Lok Sabha is given in table 3.2. Names of members of Ninth Lok Sabha, their constituencies and party affiliations are given in *Appendices.*

QUALIFICATIONS FOR MEMBERSHIP OF PARLIAMENT

In order to be chosen a member of Parliament, a person must be a citizen of India and not less than 30 years of age in case of the Rajya Sabha and not less than 25 years of age in case of the Lok Sabha. Additional qualifications may be presecribed by Parliament by law.

FUNCTIONS AND POWERS OF PARLIAMENT

As in other parliamentary democracies, Parliament of India has cardinal functions of legislation, overseeing of administration, passing of budget, ventilation of public grievances, discussing various subjects like development plans, international relations and national policies. Distribution of powers between the Union and states, followed in the Constitution, emphasises in many ways general predominance of Parliament in legislative field. Apart from wide range of subjects, even in normal times Parliament can, under certain circumstances, assume legislative power over a subject falling within the sphere exclusively reserved for the states. Parliament is also vested with powers to impeach President and to remove judges of Supreme Court and high courts, Chief Election Commissioner and Comptroller and Auditor-General in accordance with procedure laid down in the Constitution.

All legislation requires consent of both Houses of Parliament. In case of money bills, however, will of the Lok Sabha prevails. Delegated legislation is also subject to review and control by Parliament. Besides power to legislate, the Constitution vests in Parliament power to initiate amendment of the Constitution. A list of laws made by Parliament during 1989 is given in *Appendices.*

PARLIAMENTARY COMMITTEES

Functions of Parliament are not only varied in nature, but considerable in volume. Time at its disposal is limited. It can not, therefore, give close consideration to all legislative and other matters that come up before it. A good deal of its business is, therefore, transacted in committees.

Both Houses of Parliament have a similar committee structure, with a few exceptions. Their appointment, terms of office, functions and procedure for conducting their business, are also more or less, similar and are regulated under provisions of rules made by two Houses under Article 118(1) of the Constitution.

Broadly, parliamentary committees are of two kinds—standing committees and *ad hoc* committees. The former are elected or appointed every year or periodically and their work goes on, more or less, on a continuous basis. The latter are appointed on an *ad hoc* basis as need arises and they cease to exist as soon as they complete the task assigned to them and have submitted their reports.

Standing Committees: Among standing committees, three financial committees—*Committees on Estimates, Public Accounts and Public Undertakings*—constitute a distinct group and they keep an unremitting vigil over government expenditure and performance. While members of the Rajya Sabha are associated with committees on Public Accounts and Public Undertakings, members of the Committee on Estimates are drawn entirely from the Lok Sabha.

Besides these three financial committees, Parliament since 18 August 1989 has first ever three departmentally-related standing *Subject Committees*-one each on Agriculture, Science and Technology, and Environment and Forests. Each committee consists of 15 members of the Lok Sabha and seven members of the Rajya Sabha.

Estimates Committee reports on 'what economies, improvements in organisation, efficiency or administrative reform consistent with policy underlying the estimates' may be effected. It also examines whether the money is well laid out within limits of the policy implied in the estimates and suggests the form in which estimates shall be presented to Parliament. *Public Accounts Committee* scrutinises appropriation and finance accounts of government and reports of Comptroller and Auditor-General. It ensures that public money is spent in accordance with Parliament's decision and calls attention to cases of waste, extravagance, loss or nugatory expenditure. *Committee on Public Undertakings* examines reports and accounts of certain specified public undertakings and reports of Comptroller and Auditor-General, if any. It also examines whether public undertakings are being run efficiently and managed in accordance with sound business principles and prudent commercial practices. Control exercised by these committees is of a continuous nature. They gather information through questionnaires, memoranda from representative non-official organisations and knowledgeable individuals, on-the-spot studies of organisations and oral examination of non-official and official witnesses. Between them financial committees examine and report on a fairly large area of multifarious government activities at the Centre.

These committees have adequate procedures to ensure that their recommendations are given due consideration by Government. Progress in implementation of recommendations as well as any unresolved differences between committees and Government are set out in 'Action Taken Reports' which are presented to the House from time to time.

Subject Committees would scrutinise, on a constant and concurrent basis, functioning and activities of concerned Ministries/Departments/allied organisations and would take up for further examination subjects of topical interest as may arise after detailed studies.

Other standing committees, in each House, divided in terms of their functions, are (i) Committees to inquire: (a) *Committee on Petitions* examines petitions on bills and on matters of general public interest and also entertains representations on matters concerning Central subjects, and (b) *Committee on Privileges* examines any question of privilege referred to it by the House or Speaker/Chairman. (ii) Committees to scrutinise: (a) *Committee on Government Assurances* keeps track of all assurances, promises, undertakings, etc., given by ministers in the House and pursues them till they are implemented; (b) *Committee on Subordinate Legislation* scrutinises and reports to the House whether power to make regulations, rules, sub-rules, bye-laws, etc., conferred by the Constitution or Statutes is being properly exercised by authorities so authorised, and (c) *Committee on Papers laid on the Table* examines all papers laid on the table of the House by ministers, other than statutory notifications and orders which come within the purview of the Committee on Subordinate Legislation, to see whether there has been compliance with provisions of the Constitution, Act, rule or regulation under which the paper has been laid. (iii) Committees relating to day-to-day business of the House: (a) *Business Advisory Committee* recommends allocation of time for items of government and other business to be brought before the House; (b) *Committee on Private Members' Bills and Resolutions of the Lok Sabha* classifies and allocates time to bills introduced by private members, recommends allocation of time for discussion on private members' resolutions and examines Constitution amendment bills before their introduction by private members in the Lok Sabha. The Rajya Sabha does not have such a committee. It is the Business Advisory Committee of that House which recommends allocation of time for discussion on stage or stages of private members' bills and resolutions; (c) *Rules Committee* considers matters of procedure and conduct of business in the House and recommends amendments or additions to the Rules, and (d) *Committee on Absence of Members from the Sittings of the House of the Lok Sabha* considers all applications from members for leave of absence from sittings of the House. There is no such committee in the Rajya Sabha. Applications from members for leave of absence are considered by the House itself. (iv) *Committee on the Welfare of Scheduled Castes and Scheduled Tribes*, on which members from both Houses serve, considers all matters relating to welfare of scheduled castes and scheduled tribes which come within the purview of the Union government and keeps a watch whether constitutional safeguards in respect of these classes are properly implemented. (v) Committees concerned with provisions of facilities to members: (a) *General Purpose Committee* considers and advises Speaker/Chairman on matters concerning affairs of the House, which do not appropriately fall within the purview of any other parliamentary committee, and (b) *House Committee* deals with residential accommodation and other amenities for members. (vi) *Joint Committee on Salaries and Allowances of Members of Parliament*, constituted under the Salary, Allowances and Pension of Members of Parliament Act, 1954, apart from framing rules for regulating payment of salary, allowances and pension to members of Parliament, also frames rules in respect of amenities like medical, housing, telephone, postal, constituency and secretariat facilities. (vii) *Joint Committee on Offices of Profit* examines composition and character of committees and other bodies appointed by Central and state governments and union territory administrations and recommends what offices ought to or ought not to disqualify a person for being chosen as and for being a member of either House of Parliament, and (viii) *Library Committee*, consisting of members from both Houses, considers matters concerning Library of Parliament.

Ad hoc Committees: such committees may be broadly classified under two heads (a) committees which are constituted from time to time, either by two Houses on a motion adopted in that behalf or by Speaker/Chairman to inquire into and report on specific subjects (*e.g., Committee on the Conduct of Certain Members during President's Address, Committees on Draft Five Year Plans, Railway Convention Committee, etc.)* and (b) *Select or Joint Committees on Bills* which are appointed to consider and report on a particular bill. These committees are distinguishable from other ad hoc committees in as much as they are concerned with bills and procedure to be followed by them is laid down in the Rules of Procedure and Directions by Speaker/Chairman.

LEADER OF OPPOSITION IN PARLIAMENT

Giving cognizance to the important role of leader of opposition in parliamentary democracy, statutory recognition has been accorded to leaders of opposition in the Rajya Sabha and the Lok Sabha. They also get salary and certain facilities enabling them to discharge their functions in Parliament. Necessary legislation for this was passed by Parliament in August 1977. The Act and the Rules framed thereunder were brought into force on 1 November 1977. Leaders of the Congress (I) in the Lok Sabha and the Rajya Sabha have been recognised as Leaders of Opposition in these two Houses.

PLANNING OF GOVERNMENT BUSINESS

Ministry of Parliamentary Affairs has been entrusted with responsibility of coordinating planning and arrangement of government business–both legislative and non-legislative in the Lok Sabha and the Rajya Sabha. It maintains contacts with leaders of opposition parties/groups for their views on allocation of time in two Houses on important issues coming up before Parliament. In order to ascertain their views on national problems, it also arranges meetings of opposition leaders with Prime Minister and/or ministers concerned.

PARLIAMENTARY PRIVILEGES

The Constitution provides for freedom of speech in Parliament. No member of Parliament can be held liable to any proceedings in any court in respect of anything said or any vote given by him in Parliament or any of its committees. In other respects, powers, privileges and immunities of each House of Parliament and of members and committees of each House shall be such as may from time to time be defined by Parliament by law, and, until so defined, shall be those of that House and of its members and committees immediately before 20 June 1979.

CONSULTATIVE COMMITTEES

Ministry of Parliamentary Affairs constitutes consultative committees comprising members of Parliament drawn from both Houses to promote contacts between members and ministers/officials and to foster closer acquaintance of members, through discussion, with principles, problems and working of government policies and public administration. There is one such committee for every ministry.

IMPLEMENTATION OF ASSURANCES

The Ministry culls out assurances, promises, undertakings, etc., by ministers in both Houses of Parliament from daily proceedings and forwards them to concerned ministries/departments for implementation. Necessary information is collected from them and after due scrutiny statements showing action taken by government in implementation of assurances are laid periodically on tables of both the Houses by Minister of Parliamentary Affairs.

YOUTH PARLIAMENT

Youth Parliament scheme started in pursuance of recommendation of the fourth All-India Whips Conference, aims at imbibing spirit of discipline and tolerance, cultivating character in young minds, strengthening roots of democracy and acquaint younger generation with practices and procedure of Parliament.

The Ministry provides necessary training and encouragement to states in introducing the scheme. It conducts orientation courses for principals/teachers and organisers of competition in states/union territories. Officers of the Ministry visit states to give on-the-spot theoretical and practical training for conducting a Youth Parliament session.

ADMINISTRATIVE SET-UP

President had made the Government of India (Allocation of Business) Rules, 1961 under the Constitution. It is transacted in ministries, departments, secretariats and offices specified in those Rules (all of which are referred to as 'departments'). Allocation of business is made by President on advice of Prime Minister, among ministers by assigning one or more departments to the charge of a minister. A Cabinet minister is often assisted by a minister of state. Generally, each department has an officer designated as secretary to Government of India to advise minister on policy matters and general administration.

CABINET SECRETARIAT

Cabinet Secretariat has an important coordinating role in decision-making at highest level and operates under direction of Prime Minister. Its functions include submission of cases to Cabinet and its committees, preparation of records of decision taken and follow-up action on their implementation. It also serves committees of secretaries which meet periodically with Cabinet Secretary as head to consider and advise on problems requiring inter-ministerial consultation and coordination. It formulates rules of business and allocates business of government to ministries and departments under direction of Prime Minister and with approval of President. The Secretariat obtains and circulates to President, Vice President, Council of Ministers and other important functionaries, periodical summaries and notes on important developments in each ministry.

Cabinet Secretariat is empowered to set up special committees, boards and' commissions for issues requiring urgent and exclusive attention. Government set up an Implementation Committee for commemoration of 40th Anniversary of India's Independence and Birth Centenary of Jawahar Lal Nehru. National Transportation Safety Board overseas functions of sectoral safety organisations and their effectiveness in implementation of safety–related measures. Directorate of Public Grievances was set up in 1988 to entertain grievances from public where complainants fail to get satisfactory redressal from Ministry/Department concerned within a reasonable period of time. Office of Secretary SC/ST in Cabinet Secretariat ensures prompt action on intimations from Commissioner for SC and ST, against delinquent officers who are reported not to have taken timely action and are considered *prima facie* responsible for negligence in carrying out any action resulting in violation of safegaurds for SC and ST.

PUBLIC SERVICES

ALL-INDIA SERVICES

In pursuance of Clause (1) of Article 312 of the Constitution, Parliament passed the All-India Services Act, 1951 which provided for constitution of two services, *viz.*, Indian Administrative Service and Indian Police Service. The Act was amended in 1963 to provide for constitution of three more all-India services, *viz.*, Indian Service of Engineers (Irrigation, Power, Buildings and Roads), Indian Forest Service and Indian Medical and Health Service. Indian Forest Service was constituted on 1 July 1966. The other two services constituted–Indian Administrative Service along with other Central services is controlled by Department of Personnel and Training, while Indian Police Service by Ministry of Home Affairs and Indian Forest Service by Department of Environment, Forests and Wild Life.

Recruitment to Indian Administrative Service (IAS) is made on the basis

TABLE 3.1 LOK SABHA AND ITS SPEAKER(S)

LOK SABHA			SPEAKER[1]		
	Date of first meeting after its constitution	Date of dissolution	Name	From	To
First Lok Sabha	13 May 1952	4 April 1957[2]	Ganesh Vasudev Mavalankar M Ananthasayanam Ayyangar	15 May 1952 8 March 1956	27 February 1956[3] 10 May 1957
Second Lok Sabha	10 May 1957	31 March 1962[4]	M Ananthasayanam Ayyangar	11 May 1957	16 April 1962
Third Lok Sabha	16 April 1962	3 March 1967[5]	Hukam Singh	17 April 1962	16 March 1967
Fourth Lok Sabha	16 March 1967	27 December 1970[6]	Neelam Sanjiva Reddy Dr Gurdial Singh Dhillon	17 March 1967 8 August 1969	19 July 1969[7] 19 March 1971
Fifth Lok Sabha	19 March 1971	18 January 1977[8]	Dr Gurdial Singh Dhillon Bali Ram Bhagat	22 March 1971 5 January 1976	1 December 1975[9] 25 March 1977

1. Under Article 94 of the Constitution in case of dissolution of the Lok Sabha, Speaker does not vacate his office until immediately before the first meeting of the House after dissolution
2. Dissolved 38 days before expiry of its term
3. Died.
4. Dissolved 40 days before expiry of its term
5. Dissolved 44 days before expiry of its term
6 Dissolved one year and 79 days before expiry of its term
7 Resigned.
8. Term of the Lok Sabha, which was to expire on 18 March 1976, was extended by one year up to 18 March 1977 by the House of the People (Extension of Duration) Act, 1976. It was extended for a further period of one year up to 18 March 1978 by the House of the People (Extension of Duration) Amendment Act, 1976 However, House was dissolved after having been in existence for a period of five years, 10 months and six days
9. Resigned.

TABLE 3.1 (*Continued*)

LOK SABHA			SPEAKER[1]		
	Date of first meeting after its constitution	Date of dissolution	Name	From	To
Sixth Lok Sabha	25 March 1977	22 August 1979[10]	Neelam Sanjiva Reddy K S Hegde	26 March 1977 21 July 1977	13 July 1977[11] 21 January 1980
Seventh Lok Sabha	21 January 1980	31 December 1984[12]	Dr Bal Ram Jakhar	22 January 1980	15 January 1985
Eighth Lok Sabha	15 January 1985	27 November 1989[13]	Dr Bal Ram Jakhar	16 January 1985	18 December 1989
Ninth Lok Sabha	18 December 1989	—	Rabi Ray	19 December 1989	Till date

10. House was dissolved after having been in existence for a period of two years, four months and 28 days
11. Resigned.
12. Dissolved 20 days before expiry of its term
13 Dissolved 48 days before expiry of its term.

TABLE 3.2 ALLOCATION OF SEATS IN TWO HOUSES OF PARLIAMENT AND PARTY POSITION IN LOK SABHA

(As on 1 January 1990)

		LOK SABHA										
State/Union Territory (1)	No.of seats in Rajya Sabha (2)	Seats (3)	Cong (I) (4)	JD (5)	BJP (6)	CPI (M) (7)	CPI (8)	AIADMK (9)	Other Parties (10)	Inde-pendent (11)	Total (12)	Vacancies (13)
STATES												
1. Andhra Pradesh	18	42	39	—	—	—	—	—	3[1]	—	42	—
2. Arunachal Pradesh	1	2	2	—	—	—	—	—	—	—	2	—
3. Assam	7	14	—	—	—	—	—	—	—	—	—	14
4. Bihar	22	54	4	30	9	1	4	—	5[2]	—	53	1
5. Goa	1	2	—	—	—	—	—	—	1[3]	—	1	1
6. Gujarat	11	26	3	11	12	—	—	—	—	—	26	—
7 Haryana	5	10	4	5	—	—	—	—	—	—	9	1
8. Himachal Pradesh	3	4	1	—	3	—	—	—	—	—	4	—
9. Jammu and Kashmir	4	6	2	—	—	—	—	—	3[4]	1	6	—
10. Karnataka	12	28	27	1	—	—	—	—	—	—	28	—
11. Kerala	9	20	14	—	—	2	—	—	4[5]	—	20	—
12. Madhya Pradesh	16	40	8	3	27	—	—	—	—	1	39	1
13. Maharashtra	19	48	28	5	10	—	1	—	1[6]	3	48	—
14. Manipur	1	2	2	—	—	—	—	—	—	—	2	—
15. Meghalaya	1	2	2	—	—	—	—	—	—	—	2	—
16 Mizoram	1	1	1	—	—	—	—	—	—	—	1	—
17. Nagaland	1	1	1	—	—	—	—	—	—	—	1	—
18. Orissa	10	21	3	15	—	1	1	—	—	—	20[11]	—
19. Punjab	7	13	2	1	—	—	—	—	7[7]	3	13	—
20. Rajasthan	10	25	—	11	13	1	—	—	—	—	25	—
21. Sikkim	1	1	—	—	—	—	—	—	1[8]	—	1	—
22. Tamil Nadu	18	39	26	—	—	—	1	11	—	—	38	1

TABLE 3.2 (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
23. Tripura	1	2	2	—	—	—	—	—	—	—	2	—
24. Uttar Pradesh	34	85	15	53	8	1	2	—	3[9]	2	84	1
25. West Bengal	16	42	4	—	—	26	3	—	8[10]	—	41	1
UNION TERRITORIES												
26. Andaman and Nicobar Islands	—	1	1	—	—	—	—	—	—	—	1	—
27. Chandigarh	—	1	—	1	—	—	—	—	—	—	1	—
28. Dadra and Nagar Haveli	—	1	—	—	—	—	—	—	—	1	1	—
29. Daman and Diu	—	1	—	—	—	—	—	—	—	1	1	—
30. Delhi	3	7	2	1	4	—	—	—	—	—	7	—
31. Lakshadweep	—	1	1	—	—	—	—	—	—	—	1	—
32. Pondicherry	1	1	1	—	—	—	—	—	—	—	1	—
NOMINATED												
1. Under Article 331 of the Constitution (Anglo-Indian)	—	2	—	—	—	—	—	—	—	—	—	—
2. Under Article 80(1) (a) of the Constitution	12	—	—	—	—	—	—	—	—	—	—	—
TOTAL	245	543[12]	195	137	86	32	12	11	36	12	521[11]	21

1. Telugu Desam–2; All India Majlis-e-Ittehadul Muslimeen–1,
2. Jharkhand Mukti Morcha–3; Indian People's Front–1; Marxist Co-ordination–1.
3. Maharashtrawadi Gomantak Party–1.
4. National Conference–3.
5. Muslim League–2; Indian Congress Socialist (Sarat Chandra Sinha)–1; Kerala Congress (M)–1.
6. Shiv Sena–1.
7. Shiromani Akali Dal (Simranjit Singh Maan)–6; Bahujan Samaj Party–1.
8. Sikkim Sangram Parishad–1.
9. Bahujan Samaj Party–4; Akhil Bharatiya Hindu Maha Sabha–1.
10. Revolutionary Socialist Party–4; Forward Block–3; Gorkha National Liberation Front–1.
11. Excluding the Speaker.
12. Does not include two members of Anglo-Indian Community.

of annual Civil Services Examination conducted by Union Public Service Commission (UPSC). Persons appointed to IAS are allocated to different state cadres. At present there are 21 cadres. Total authorised cadre strength of IAS and number of officers in position as on 1 November 1989 was 5,254 and 4,878 respectively. After conferment of statehood on Arunachal Pradesh, Goa and Mizoram, erstwhile Union Territories Cadre has become a joint cadre of union territories with these three states.

CENTRAL SECRETARIAT SERVICES

Under Central Secretariat Service Scheme (CSS), Section Officers' Grade, Assistants' Grade, all grades of Central Secretariat Stenographers' Service (CSSS) and Central Secretariat Clerical Service are decentralised. Recently, in accordance with recommendations of the Fourth Pay Commission, a new grade designated as Private Secretary has been introduced in CSSS. This grade is being managed on a centralised basis. Besides Selection Grade and Grade I of CSS are also centralised.

In respect of decentralised cadres, Department of Personnel and Training monitors and assesses requirements of different cadres for fixing zones of promotion and filling up of vacancies through open competitive and departmental examinations. Civil Services of Central government are organised into four groups, *viz.*, Group 'A', Group 'B', Group 'C' and Group 'D', grouping being done on the basis of pay scales attached to posts. UPSC and Staff Selection Commission (SSC) are two recruitment agencies, former for Group 'A' and some Group 'B' services/posts and latter for recruitment to non-technical Group 'B' and 'C' posts. Recruitment to Assistants' Grade and Stenographers (Grade 'C') has also now been entrusted to SSC.

UNION PUBLIC SERVICE COMMISSION

For recruitment to civil services and posts in Groups A and B, the Constitution provides for an indepndent body known as Union Public Service Commission. Chairman and members of the Commission are appointed by President.

To ensure independence the Constitution debars its chairman or members form further employment after retirement. A member of the Commission is, however, eligible for appointment as chairman of that Commission or a state public service commission, but for no other government employment. Personnel of the Commission as on 15 March 1990 were: *Chairman* Jagdish Prakash Gupta, *Members* Jagdish Rajan, Dr. R. Arockiasamy, Surendra Nath, Qazi Mukhtar Ahmed, Smt. Rosemillan Bathew Kharbuli, Vice Admiral (Rtd.) G.M. Hiranandani, A. Padmanabhan, J.A. Kalyankrishnan and Harish Chandra.

STAFF SELECTION COMMISSION

On recommendations of Administrative Reforms Commission, a Subordinate Service Commission came into existence on 1 July 1976, renamed as

Staff Selection Commission. Its primary function is to make recruitments to non-technical Group 'C' posts in different departments and subordinate offices except those posts for which recruitment is made by Railway Service Commission and industrial establishments.

In addition the Commission has recently been charged with responsibility of holding Assistants' Grade and Stenographers' Grade 'C' examinations. These are both Group 'B' posts. Commission's headquarters as well as office of its northern region are in New Delhi. Offices of central, western, north-eastern and southern regions are at Allahabad, Bombay, Guwahati, Calcutta and Madras respectively. It has one sub-regional office at Raipur.

COMPTROLLER AND AUDITOR-GENERAL

Comptroller and Auditor-General is appointed by President. Procedure and grounds for his removal from office are the same as for a Supreme Court judge. He is not eligible for further office under the Union or a state government after he ceases to hold his office. His duties, powers and conditions of service have been specified by the Comptroller and Auditor-General's (Duties, Powers and Conditions of Service) Act, 1971.

President on advice of Comptroller and Auditor-General prescribes the form in which accounts of the Union and states are to be kept. His reports on accounts of the Union and states are submitted to President and respective Governors which are placed before Parliament and state legislatures.

OFFICIAL LANGUAGE

Hindi in Devanagari script is official language of the Union. International form of Indian numerals is to be used for official purpose. The Constitution also authorised continued use of English up to 25 January 1965, after which Parliament could further consider the issue. The Official Languages Act, 1963 provided for continued use of English in addition to Hindi for official purposes and transaction of business in Parliament. English was to be used for purposes of communication between the Union and a state which has not adopted Hindi as official language. It does not, however, prevent such a state from using Hindi for communication with the Union or with a state which has adopted Hindi as such. The Act also lays down that both Hindi and English shall compulsorily be used for certain specified purposes, such as resolutions, general orders, rules, notifications, press communiques, administrative reports, licences, permits, contracts, agreements, etc.

Under provisions of Section 8 of the Official Languages Act, 1963, Government has framed the Official Languages (Use for Official Purposes of the Union) Rules, 1976, which are intended to provide .practical guidelines for implementation of Government's language policy. Its salient features are: (i) they apply to all Central government offices including any office of a corporation or company owned or controlled by it; (ii) communications from a Central government office to state/UT in Region A (Uttar Pradesh, Himachal Pradesh, Madhva Pradesh, Bihar, Rajasthan, Haryana, Andaman and Nicobar Islands and Delhi) shall be in Hindi; (iii) communications from a Central government office to state/UT in Region B (Punjab, Gujarat, Maharashtra and Chandigarh) shall ordinarily be in Hindi. However, communications to any person in Region B may be either in Hindi or English; (iv) communications from a Central government office to state/UT or to any person there, other than those indicated in (ii) and (iii) above shall be in English; (v) communications between one ministry or department of Central government and another may be in Hindi or in English; (vi) communications between a ministry or department and an attached or subordinate office of Central government in Region A shall be in Hindi in such proportion as determined from time to time (proportion currently enforced is 90 per cent). Communications between other Central government offices in Region A shall be only in Hindi; (vii) all communications in Hindi shall be replied to in Hindi. Similarly whenever any application, appeal or representation is made or signed in Hindi shall be replied to in Hindi; (viii) every Central government employee has option to use either Hindi or English for recording notes or minutes on a file, without being required to furnish a translation thereof; (ix) all manuals, codes and other procedural literature relating to Central government offices shall be prepared both in Hindi and English. All forms, headings of registers, name plates, notice boards and various items of stationary, etc., shall be in Hindi and English; (x) it shall be the responsibility of the officer signing documents specified in Section 3 (3) of the Act to ensure that these are issued both in Hindi and English; (xi) it is necessary that all electronic equipment to be purchased in Central ministries/departments and their attached and subordinate offices, public undertakings and nationalised banks, should have facility in both Devanagari as well as Roman script, (xii) all those employees should be imparted training in Hindi workshops who have attained working knowledge or proficiency in Hindi and who earlier have not been imparted training in such workshops; (xiii) optional use of Hindi as alternative medium should be allowed and question papers be prepared in both languages (Hindi and English) in all in-service departmental and promotional examinations (including All-India examinations) of all ministries/departments and their attached and subordinate offices and corporations, undertakings, banks, etc., owned or controlled by Central government. Where an interview is to be held, candidates may be allowed the option to answer in Hindi; (xiv) optional use of Hindi as alternative medium in examinations conducted on regional or local basis for direct recruitment to services and posts in subordinate offices of Government, should be allowed in the manner specified; (xv) arrangements for teaching in training institutes of Central government should be made according to procedure laid down; (xvi) proportion of typists in Central government offices trained through Hindi medium has been fixed and should be followed accordingly; (xvii) (a) of the total number of typewriters in headquarters of ministries/departments in Region 'A', atleast 25 per cent should be Devanagari typewriters, (b) 50 per cent in offices other than headquarters of ministries/departments in Region 'A', (c) at least 25 per cent in Region 'B', and (d) at least 10 per cent in Region 'C'. Till such time as the number of Devanagari typewriters in any ministry/department/office does not reach the above mentioned proportion, they should continue to purchase only such typewriters. Even in replacement to any condemned Roman script typewriter, Devanagari typewriters should be purchased. If there is need to procure Devanagari typewriters in excess of this proportion in any office, there would be no objection in purchasing them; (xviii) all ministries/departments in Region 'A' should have atteast 25 per cent of total posts of stenographers filled in by stenographers trained in Hindi. In case of attached and subordinate offices as well as offices of any corporation, company and bank owned or controlled by Central government, this ratio must be at least 50 per cent. In case of Region 'B', this limit should be atleast 25 per cent while in Region 'C' atleast 10 per cent. In offices where there are less than ten stenographers, atleast one post should be manned by a trained Hindi stenographer. This minimum ratio will, for the present, be applicable to offices of Central government in Region 'C' in those cities only where Department of Official Language is running training centres for Hindi stenography. If the need of trained Hindi stenographer in any office is more than the ratio prescribed he can be appointed through direct recruitment. Even after achievement of above prescribed ratio, English stenographers should continue to be given training in Hindi stenography until all stenographers acquire it; (xix) persons who already know Hindi or have acquired working knowledge of Hindi after having passed Hindi examination should not normally require translation from Hindi to English. Attempt should be made to see that letters required to be issued in Hindi are drafted origninally in Hindi; (xx) all employees in Region 'A' and Region 'B' who possess proficiency in Hindi shall submit drafts of these communications only in Hindi: (a) all communications to states/UTs in Region 'A' and Region 'B' and all offices, undertakings, etc., of Central government in these regions or any person in these regions, (b) replies to all communications received in Hindi, (c) reply to any application, appeal or representation from any employee written or signed in Hindi and (d) noting in Hindi on files for which orders have been given to put up drafts to communications only in Hindi; (xxi) there should be an option to present research papers, etc., in Hindi in all seminars, discussions, conferences, etc., organised by Government. Also scientists, technicians and other personnel should be inspired and encouraged to read these papers in Hindi. Arrangements should be made as far as possible either to publish or bring out in separate formats Hindi papers on scientific and technical subjects, and (xxii) it shall be the responsibility of administrative head of each Central government office to ensure that provisions of the Act, Rules and directions issued thereunder are properly complied with and devise suitable and effective check points for this purpose.

For this, Department of Official Language in Ministry of Home Affairs coordinates activities of various ministries/departments. Its functions include: (i) implementation of the provisions of the Constitution on Official Language and the Official Languages Act, 1963 (except to the extent such implementation has been assigned to any other department); (ii) prior approval of President for authorising limited use of a language, other than English, in proceedings in a high court of a state; (iii) nodal responsibility for all matters relating to progressive use of Hindi including Hindi teaching schemes for Central government employees and publication of magazines, journals and other related literature; (iv) coordination in all matters relating to progressive use of Hindi including administrative terminology, syllabi, textbooks, training courses and equipment (with standardised script) required therefor; (v) constitution and cadre management of Central Secretariat Official Language Service; (vi) matters relating to *Kendriya Hindi Samiti;* (vii) coordination of work relating to *Hindi Salahkar Samiti* of ministries/departments, and (viii) matters relating to Central translation bureau.

Kendriya Hindi Prashashan Sansthan imparts full time in-service training in Hindi, Hindi typing and Hindi stenography to Central government employees.

MINISTRIES/DEPARTMENTS OF THE GOVERNMENT

Government consists of a number of ministries/departments, number and character varying from time to time on factors such as volume of work, importance attached to certain items, changes of orientation, political expediency, etc. On 15 August 1947, number of ministries at the Centre was 18. According to a notification issued on 23 April 1990 under the Governement of India (Allocation of Business) Rules, 1961, Government consists of following ministries/departments:

1. Ministry of Agriculture

(i) Department of Agriculture and Cooperation
(ii) Department of Agricultural Research and Education
(iii) Department of Rural Development
(iv) Department of Fertilisers

2. Ministry of Civil Aviation

3. Ministry of Commerce

(i) Department of Commerce
(ii) Department of Supply

4. Ministry of Communications

(i) Department of Posts
(ii) Department of Telecommunications

5. Ministry of Defence

(i) Department of Defence
(ii) Department of Defence Production and Supplies
(iii) Department of Defence Research and Development

6. Ministry of Energy

(i) Department of Coal
(ii) Department of Power
(iii) Department of Non-Conventional Energy Sources

7. Ministry of Environment and Forests

(i) Department of Environment, Forests and Wildlife

8. Ministry of External Affairs
9. Ministry of Finance

(i) Department of Economic Affairs
(ii) Department of Expenditure
(iii) Department of Revenue

10. Ministry of Food and Civil Supplies

(i) Department of Food
(ii) Department of Civil Supplies

11. Ministry of Food Processing Industries
12. Ministry of Health and Family Welfare

(i) Department of Health
(ii) Department of Family Welfare

13. Ministry of Home Affairs

(i) Department of Internal Security
(ii) Department of States
(iii) Department of Official Language
(iv) Department of Home

14. Ministry of Human Resource Development

(i) Department of Education
(ii) Department of Youth Affairs and Sports
(iii) Department of Women and Child Welfare
(iv) Department of Arts
(v) Department of Culture

15. Ministry of Industry

(i) Department of Industrial Development
(ii) Department of Company Affairs
(iii) Department of Public Enterprises
(iv) Department of Small Scale Industry, Agro and Rural Industries

16. Ministry of Information and Broadcasting
17. Ministry of Labour
18. Ministry of Law and Justice

(i) Department of Legal Affairs
(ii) Legislative Department
(iii) Department of Justice

19. Ministry of Parliamentary Affairs
20. Ministry of Personnel, Public Grievances and Pensions

(i) Department of Personnel and Training
(ii) Department of Administrative Reforms and Public Grievances
(iii) Department of Pension and Pensioners' Welfare

21. Ministry of Petroleum and Chemicals

(i) Department of Petroleum and Natural Gas
(ii) Department of Chemicals and Petro-Chemicals

22. Ministry of Planning

(i) Department of Planning
(ii) Department of Statistics

23. Ministry of Programme Implementation
24. Ministry of Railways
25. Ministry of Science and Technology

(i) Department of Science and Technology
(ii) Department of Scientific and Industrial Research
(iii) Department of Biotechnology.

26. Ministry of Steel and Mines

(i) Department of Steel
(ii) Department of Mines

27. Ministry of Surface Transport
28. Ministry of Textiles

29. Ministry of Tourism
30. Ministry of Urban Development
31. Ministry of Water Resources
32. Ministry of Welfare
33. Department of Atomic Energy
34. Department of Electronics
35. Department of Ocean Development
36. Department of Space
37. Cabinet Secretariat
38. President's Secretariat
39. Prime Minister's Office
40. Planning Commission

ADMINISTRATIVE REFORMS AND PUBLIC GRIEVANCES

Department of Administrative Reforms and Public Grievances set up in Ministry of Personnel, Public Grievances and Pensions in March 1985, acts as a nodal agency in Central government in area of administrative reforms/organisation and methods. It evolves policy and coordinates issues relating to redressal of public grievances in general and grievances pertaining to Central government agencies in particular. Main activities include conducting management studies, identification of grievance-prone areas and studies for remedial action, and research and publication in various spheres of public administration.

MANAGEMENT STUDIES

Management consultancy studies constitute one of the major functions of this Department. These include wide spectrum of organisations. Proposals for reforms in organisation, structure, systems, methods and procedures are put forth in these studies to bring about greater efficiency, cut down delays and reduce paperwork. Emphasis is laid on those areas where citizens come in direct contact with administration. Some recent studies are: simplification of procedures for settlement of third party compensation claims of motor velicle accident victims; working of emergency department in Dr. Ram Manohar Lohia Hospital, New Delhi; simplification of procedure for processing applications for recruitment by SSC; women in civil services; simplification of procedure for processing of failure of conciliation proceedings in Ministry of Labour; review of IWSU functioning in various Central ministries; office system and procedures in Director General of Shipping, Bombay, and rationing system in Delhi.

A number of 'impact studies' have also been undertaken to evaluate effectiveness of the recommendations made in earlier study reports like working of Delhi Electric Supply Undertaking; functioning of State Bank of India exchange counters at Indira Gandhi International Airport; arbitration procedures in Central Public Works Department; disposal procedure in Director General of Supplies and Disposals, etc.

REDRESS OF PUBLIC GRIEVANCES

Redressal of public grievances through effective grievance management techniques occupies a prominent place in public administration. Strategies adopted include setting up or strengthening of grievance redress machinery in each ministry/department/organisation; concentration more on identification of system deficiencies that give rise to complaints; securing cooperation and support to voluntary agencies in this regard, and utilising media for transmission of information on various innovative measures taken by Government, thus creating awareness among people about their rights and privileges.

Machinery for redressal of public grieevances set up at Centre has three levels, namely, (i) internal grievances redress machinery within each ministry/department by which all ministries/departments have appointed grievance officers. Wednesday has been fixed as meetingless day when officers can be contacted between 10 a.m. and 1 p.m.; (ii) external machinery in the form of monitoring by Department of Administrative Reforms and Public Grievances, and (iii) an imdependent grievance redressal authority—Directorate of Public Grievances—under Cabinet Secretariat to handle long pending cases pertaining to seven departments, *viz.*, Railways, Posts, Telecommunications, Economic Affairs (Banking Division), Civil Aviation, Surface Transport and Urban Development.

ORGANISATIONAL REVIEW

Organisational review is another major activity that has received a special attention. In early 1985, all ministries/departments were requested to carry out a complete review of the administrative organisation, policies and procedures with the object of achieving decentralisation in decision-making process, enforcement of accountability, simplification of rules and procedures, prompt and courteous service to citizens. Action taken is being monitored through reports and meetings taken by Minister of State for Personnel, Public Grievances and Pensions with departmental secretaries.

These reviews have helped in motivating ministries to tone up administration and bring about improvement in disposal of cases.

ENFORCEMENT OF ACCOUNTABILITY

An annual action plan has been adopted as a basic instrument for enforcement of accountability. This has been further supplemented by streamlined procedure for inter-ministerial consultations, fixation of levels for final decision on various categories of cases and revision of annual confidential report form to facilitate objective performance appraisal.

IMPROVING EFFICIENCY IN SECRETARIAT

A number of measures are being pursued to achieve greater efficiency and qualitative disposal of work in the secretariat. These include: decentralisation and delegation, simplification of rules and procedures, revision of manual of office procedure, reduction in levels of consideration, introduction of desk officer system and functional filing system, simplification of periodical reports and returns, introduction of modern office machines and equipment, etc. An exclusive bus service is in operation to facilitate inter-departmental visits of officials.

MODERNISATION OF GOVERNMENT OFFICES

A scheme has been introduced to improve work environment in ministries and departments. It aims at achieving tangible results in the shortest possible time by focusing special attention on a limited area. Accordingly, a section or a unit within an office would be taken up for development into a modern unit, thereby becoming a model for others. Under the scheme a provision of rupees one crore was made in 1989-90 as against the expenditure of Rs 50.57 lakh in 1988-89. The Department also promotes introduction of modern office machines and equipment in government offices to improve speed and quality of output.

RESEARCH AND PUBLICATION

The Department acts as a data bank on administrative reforms measures both at Centre and in states. It identifies basic problems in public administration and builds up an inventory of administrative innovations. It also maintains close link with ministries/departments, state governments and research and training institutions which facilitates exchange of information of latest developments in public administration. It brings out regularly two publications, *Management in Government* (quarterly) and *Civil Services News* (monthly), besides monographs.

THE STATES

The system of government in states closely resembles that of the Union.

EXECUTIVE

GOVERNOR

State executive consists of Governor and council of ministers with chief minister at its head. Governor of a state is appointed by President for a term of five years and holds office during his pleasure. Only Indian citizens above 35 years of age are eligible for appointment to this office. Executive power of the state is vested in Governor.

Council of ministers with chief minister as head, aids and advises Governor in exercise of his functions except in so far as he is by or under the Constitution required to exercise his functions or any of them in his discretion In respect of Nagaland, Governor has special responsibility under Article 371A of the Constitution with respect to law and order and even though it is necessary for him to consult council of ministers in matters relating to law and order, he can exercise his individual judgment as to the action to be taken.

Similarly, in respect of Arunachal Pradesh, Governor has special responsibility under Article 371H of the Constitution with respect to law and order and in discharge of his functions in relation thereto, Governor shall, after consulting council of ministers, exercise his individual judgment as to the action to be taken. These are, however, temporary provisions if President, on receipt of a report from Governor or otherwise is satisfied that it is no longer necessary for Governor to have special responsibility with respect to law and order, he may so direct by an order.

Likewise, in the Sixth Schedule which applies to tribal areas of Assam, Meghalaya, Tripura and Mizoram as specified in para 20 of that Schedule, discretionary powers are given to Governor in matters relating to sharing of royalties between district council and state government. Sixth Schedule vests additional discretionary powers in Governors of Mizoram and Tripura in almost all their functions (except approving regulation for levy of taxes and money lending by non-tribals by district councils) since December 1988.

In Sikkim, Governor has been given special responsibility for peace and social and economic advancement of different sections of population.

All Governors while discharging such constitutional functions as appointment of chief minister of a state or sending a report to President about failure of constitutional machinery in a state or in respect of matters relating to assent to a bill passed by legislature, exercise their own judgment.

COUNCIL OF MINISTERS

Chief minister is appointed by Governor who also appoints other ministers on advice of chief minister. Council of ministers is collectively responsible to legislative assembly of the state.

LEGISLATURE

For every state, there is a legislature which consists of Governor and one House or, as the case many be, two Houses. In Bihar, Jammu and Kashmir, Karnataka, Maharashtra and Uttar Pradesh, there are two Houses known as legislative council and legislative assembly. In remaining states, there is only one House known as legislative assembly. Parliament may, by law, provide for abolition of an existing legislative council or for creation of one where it does not exist, if proposal is supported by a resolution of the legislative assembly concerned.

LEGISLATIVE COUNCIL

Legislative council (*vidhan parishad*) of a state comprises not more than one-third of total number of members in legislative assembly of the state and in no case less than 40 members.[1] About one-third of members of council are elected by members of legislative assembly from amongst persons who are not its members, one-third by electorates consisting of members of municipalities, district boards and other local authorities in the state, one-twelfth by electorate consisting of persons who have been, for at least three years,engaged in teaching in educational institutions within the state not lower in standard than secondary schools and a further one-twelfth by registered graduates of more than three years' standing. Remaining members are nominated by Governor from among those who have distinguished themselves in literature, science, art, cooperative movement and social service. Legislative councils are not subject to dissolution but one-third of their members retires every second year.

LEGISLATIVE ASSEMBLY

Legislative assembly (*vidhan sabha*) of a state consists of not more than 500 and not less than 60 members[2] chosen by direct election from territorial constituencies in the state. Demarcation of territorial constituencies is to be done in such a manner that the ratio between population of each constituency and number of seats allotted to it, as far as practicable, is the same throughout the state. Term of an assembly is five years unless it is dissolved earlier.

POWERS AND FUNCTIONS

State legislature has exclusive powers over subjects enumerated in List II of the Seventh Schedule of the Constitution and concurrent powers over those enumerated in List III. Financial powers of legislature include authorisation of all expenditure,taxation and borrowing by the state government. Legislative assembly alone has power to originate money bills. Legislative council can make only recommendations in respect of changes it considers necessary within a period of fourteen days of the receipt of money bill from assembly. Assembly can accept or reject these recommendations.

RESERVATION OF BILLS

Governor of a state may reserve any bill for consideration of President. Bills relating to subjects like compulsory acquisition of property, measures affecting powers and position of high courts and imposition of taxes on storage, distribution and sale of water or electricity in inter-state river or river valley development projects should necessarily be so reserved. No bill seeking to impose restrictions on inter-state trade can be introduced in a state legislature without previous sanction of President.

[1] Legislative council of Jammu and Kashmir has 36 members, *vide* Section 50 of the Constitution of Jammu and Kashmir.

[2] Legislative assembly of Sikkim has 32 members, *vide* Article 371F of the Constitution.

CONTROL OVER EXECUTIVE

State legislatures,apart from exercising usual power of financial control, use all normal parliamentary devices like questions, discussions, debates, adjournments and no-confidence motions and resolutions to keep a watch over day-to-day work of the executive. They also have their committees on estimates and public accounts to ensure that grants sanctioned by legislatures are properly utilised.

MULTI-LEVEL PLANNING

Apex planning body at state level is generally state planning board comprising chief minister as chairman and finance and planning ministers of the state and some technical experts as members. Department of planning in state government provides secretariat for the board. In many states, planning process has been decentralised to district level and in some states even to sub-division or block levels. In most of states, there is a district planning body known as district planning board or district planning committee or district planning council comprising both official and non-official members. Some states also have a separate set-up consisting of functionaries like district planning officers, economist, credit planner, project appraiser, export training coordinator and an area planner in some of the districts for formulation of district plans, which are integrated with state plan.

Present Government wishes to give a thrust to genuine decentralisation from Centre to states and from states to districts and below, with responsibilities being matched by adequate resources at each level.

UNION TERRITORIES

Union territories are administered by President acting to such extent as he thinks fit,through an Administrator appointed by him. Administrators of Andaman and Nicobar Islands, Delhi and Pondicherry are designated as Lt. Governors while Administrator of Chandigarh is designated as Chief Commissioner. Governor of Goa is concurrently the Administrator of Dadra and Nagar Haveli and Daman and Diu. Lakshadweep has a separate Administrator.

Pondicherry has legislative assembly and council of ministers. Delhi has a metropolitan council and an executive council. Andaman and Nicobar Islands, Dadra and Nagar Haveli, Lakshadweep and Daman and Diu have a *pradesh council.*

Legislative assembly of a union territory may make laws with respect to matters enumerated in List II or List III in the Seventh Schedule in so far as they are applicable in relation to union territories, However, some bills require prior approval of Central government for introduction in legislative assembly. Some bills, passed in legislative assembly, are required to be reserved by Administrator for consideration of President.

Metropolitan council in Delhi and pradesh councils in Andaman and Nicobar Islands, Dadra and Nagar Haveli and Lakshadweep and Daman and Diu have the right to discuss and make recommendations about matters in so far as they relate to their respective territories.

ZONAL COUNCILS

States and union territories on the mainland except those in north-eastern region are grouped into zones. Each zone has a high level advisory body known as zonal council which provides forum for discussing matters of common interest to the constituent units. Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan and union territories of Chandigarh and Delhi are in northern zone. Central zone comprises Madhya Pradesh and Uttar Pradesh. Bihar, Orissa, Sikkim and West Bengal are in eastern zone. Gujarat, Maharashtra and Goa and union territories of Daman and Diu and Dadra and Nagar Haveli are in western zone. Southern zone comprises Andhra Pradesh, Karnataka, Kerala and Tamil Nadu and Union Territory of Pondicherry.

LOCAL GOVERNMENT

In most of states, municipal corporations have been established for major cities under specific Acts of municipal legislature. These are headed by elected mayors. Administration of the city vests in an elected council and powers of corporation are exercised by three authorities, namely, (i) general council; (ii) standing committees, and (iii) municipal commissioner/ chief executive officer. Standing committees are elected by council and carry out most of the work of administration including taxation, finance and preparation of budget, engineering works, health and education services. General council appoints most of officers of the corporation but municipal commissioner is appointed by government. There are 73 municipal corporations in the country. The Calcutta Corporation Act has been recently amended to provide for the system of Mayor-in-Council.

MUNICIPAL COMMITTEE AND COUNCIL

For all other towns and cities, there are municipalities having elected boards or councils which in turn elect their own presidents. All members of a municipality constitute general body which decides all questions of policy and important details of municipal administration. Municipal council, however, mostly functions through committees which exercise delegated powers or make recommendations to council. Day-to-day work of municipality is carried on by an executive officer drawn sometimes from state civil service or a statewise cadre of municipal officers. In many states, however, municipal councils continue to appoint their own executive officers and other officials.

PANCHAYAT

Panchayati Raj introduced in 1959, is generally a three-tier structure of local self-government of village, block and district levels. States are, however, free to make changes in the structure to suit local conditions. Special representation on these bodies is given to backward classes, women and cooperative societies.

ELECTION COMMISSION

Superintendence, direction and control of preparation of electoral rolls for, and conducting elections to Parliament and state legislatures and to offices of President and Vice President are vested in Election Commission, a constitutional authority set up in pursuance of Article 324 (1) of the Constitution. Though clause (2) of Article 324 provides that Election Commission shall consist of Chief Election Commissioner and such number of other Election Commissioners, if any, as President may from time to time appoint, the Commission has since its inception consisted only of Chief Election Commissioner. However, on 7 October 1989 President fixed the number of Election Commissioners (other than Chief Election Commissioner) at two until further orders. Thereafter S.S. Dhanoa and V.S. Seigell were appointed Election Commissioners on 16 October 1989. On 1 January 1990 President rescinded his earlier notification and order fixing the number of Election Commissioners thereby making Election Commission a single member body as before. Independence of Election Commission is protected by a specific provision under Article 324 (5) of the Constitution to the effect that Chief Election Commissioner shall not be removed from his office except in like manner and on like grounds as a judge of Supreme Court and conditions of his service shall not be varied to his disadvantage after his appointment. It is also provided that any other Election Commissioner or a regional commissioner shall not be removed from office except on recommendation of Chief Election Commissioner. R.V.S. Peri Sastri is Chief Election Commissioner since 1 January 1986.

Plenary powers vested in Election Commission under Article 324 of the Constitution are supplemented further by Acts of Parliament, namely, Representation of the People Act, 1950 and 1951, Presidential and Vice Presidential Elections Act, 1952, Government of Union Territories Act, 1963, Delhi Administration Act, 1966 and the Rules and Orders made thereunder.

RESERVATION OF SEATS

The Constitution (Fifty-Seventh Amendment) Act, 1987 provides for determination of seats reserved for scheduled tribes in Arunachal Pradesh, Meghalaya, Mizoram and Nagaland by amending Article 332 of the Constitution. Under the Representation of the People (Amendment) Act, 1987, 59 out of 60 seats in Arunachal Pradesh, 55 out of 60 in Meghalaya, 39 out of 40 in Mizoram and 59 out of 60 in Nagaland were reserved for scheduled tribes. Election Commission has identified 55 reserved seats in Meghalaya, 59 in Nagaland, 59 in Arunachal Pradesh and 39 in Mizoram.

ELECTORAL ROLLS

Parliamentary system of government both at Centre and in states is based on adult suffrage, whereby all citizens who are not less than 18 years of age and are not disqualified under the Constitution or any law made by appropriate legislature on certain grounds like non-residence, unsoundness of mind, crime, illegal or corrupt practices, have the right to be registered as voters in any election to the Lok Sabha and legislative assemblies of states.

There were 51.06 crore electors (Provisional) on electoral rolls by 1989.

REGISTRATION OF POLITICAL PARTIES

A new part has been added to the Representation of the People (Amendment) Act, 1988 (Part-IV A), on registration of political parties. Section 29A now inserted provides for registration with the Commission, of associations and bodies of individual citizens of India as political parties for purposes of this Act. Every application for registration is required to classify: (a) if the association or body is in existence at commencement of the Representation of the People (Amendment) Act, 1988, it should apply within sixty days following such commencement, and (b) if the association or body is formed after such commencement, it should apply within thirty days following its formation.

This provision came into force from 15 June 1989. A recognised political party has been classified either as a national party or a state party under Paragraph 7 of the Election Symbols (Reservation and Allotment) Order, 1968. If a political party is recognised in four or more states, it is deemed to be a 'national party' and a political party recognised in less than four states, is a 'state party' in state or states in which it is recognised as such. National and state parties along with symbols are shown in tables 3.3 and 3.4 respectively.

ELECTORAL REFORMS

LOWERING OF VOTING AGE

The Constitution (Sixty-first Amendment) Act, 1988 amends Article 326 by substituting the words 'eighteen years' for 'twenty one years'. This came into force on 28 March 1989. Consequent to this, amendments were also made in the Representation of the People Act, 1950 and the Representation of the People Act, 1951.

ELECTION PERSONNEL TO BE ON DEPUTATION

Under the Representation of the People (Amendment) Act, 1988, a new Section 13 CC was inserted which provides that officers or staff engaged in preparation, revision and correction of electoral rolls for elections shall be deemed to be on deputation to Election Commission for the period of such employment and such personnel shall during that period, be subject to control, superintendence and discipline of Election Commission. Similar provision has been made in the Representation of the People Act, 1951.

INCREASE IN NUMBER OF PROPOSERS

Number of electors who are required to sign as proposers in nomination paper for elections to Council of States and state legislative council has been increased to ten per cent of the electors of the constituency or ten such electors, whichever is less, to prevent frivolous candidates.

ELECTRONIC VOTING MACHINES

The Representation of the People Act, 1951 was amended to facilitate use of electronic voting machines in elections.

BOOTH CAPTURING

Section 58A has been inserted in the Representation of the People Act, 1951 by Act 1 of 1989 providing for adjournment of poll or countermanding of elections because of booth capturing. Booth capturing has been defined in Section 135A of the Representation of the People Act, 1951. Booth capturing includes among other things: (a) seizure of a polling station or a place fixed for poll by any person or persons making polling authorities surrender ballot papers or voting machines and doing of any other act which affects orderly conduct of elections; (b) taking possession of polling station or a place fixed for poll by any person or persons and allowing only his or their own supporters to exercise their franchise and preventing others from voting; (c) threatening any elector and preventing him from going to polling station or a place fixed for poll to cast his vote; (d) seizure of a place for counting of votes by any person or persons, making counting authorities surrender ballot papers or voting machines and doing of anything which affects orderly counting of votes, and (e) doing by any person in the service of government, of all or any of aforesaid activities or aiding or conniving at any such activity in furtherance of election prospects of a candidate.

If because of booth capturing result of poll/result of counting can not be ascertained returning officer will report the matter forthwith to Election Commission. Election Commission on such report may either declare the poll at the particular polling station as void and appoint a date for fresh poll or countermand election in that constituency.

Section 135A provides penalty for booth capturing which shall be imprisonment for a term not less that six months which can extend to two years along with fine. Where such offence is committed by a person in the service of Government, he shall be punishable with imprisonment for a term of not less than one year which may extend to three years along with fine. As a follow-up of an all party conference convened by Prime Minister on 9 January 1990, an electoral reforms committee has been constituted under the chairmanship of Minister of Law and Justice.

GENERAL ELECTIONS

First general election in India on the basis of adult suffrage was held in 1951-52. This was a simultaneous election both for the Lok Sabha and all state legislative assemblies (including Part A,B and C states). Second general election held in 1957, shortly after reorganisation of states was also a simultaneous election. In third general election in 1962, elections to state assemblies of Kerala and Orissa became out of step with general election with the result that simultaneous elections could not by held in these two states. Similarly in 1967, simultaneous election could not be held in Nagaland and Pondicherry along with fourth general election to the Lok Sabha. After 1967, election to most of assemblies had to be held earlier than normally due with the result that Orissa, Tamil Nadu and West Bengal had simultaneous elections to the Lok Sabha and state assemblies at fifth general election held in 1971. In 1977 Kerala was the only state where election to legislative assembly was held simultaneously with sixth general election. When seventh general election was held in January 1980, elections to constitute new assemblies were held simultaneously only in Manipur, Arunachal Pradesh, Goa, Daman and Diu and Pondicherry. Polling for eighth Lok Sabha election was held on 24, 27 and 28 December 1984 in 20 states and nine union territories except Assam and Punjab. Election for assemblies of Tamil Nadu, Manipur, Arunachal Pradesh and Goa, Daman and Diu were also held simultaneously.

In Assam, the Commission in fulfilment of an assurance given to Supreme Court, initiated action to undertake intensive revision of electoral rolls of all assembly constituencies which could not be completed before commencement of the process of general election in rest of the country.

On the basis of report received from Punjab Government and also Chief Electoral Officer regarding prevailing law and order situation, the Commission was satisfied that election in Punjab could not be held along with rest of the country. For this the Representation of the People Act, 1951 was amended and a new Section 73 A was inserted by an Ordinance issued on 20 November 1984. The Ordinance was replaced by an Act of Parliament. Except Jammu and Kashmir, Madhya Pradesh, Maharashtra and Uttar Pradesh, all other states and union territories had one day poll.

In March 1985, election was held in 11 states and one union territory. Of these, election in Bihar, Gujarat, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Uttar Pradesh was held as the five-year term of assemblies of these states was due to expire in June/July 1985. Election to constitute new assemblies of Andhra Pradesh, Karnataka and Himachal Pradesh were necessitated due to their premature dissolution on 22 November 1984, 2 January 1985 and 21 January 1985, respectively.

Sikkim and Union Territory of Pondicherry were under President's Rule from 25 May 1984 and 21 June 1983. The Commission was informed that President's Rule would be revoked shortly. Except for Bihar, Maharashtra and Uttar Pradesh, where there was a two-day poll on 2 and 5 March 1985, election was held on a single day on 5 March 1985 in rest of the eight states and one union territory.

Election to constitute assembly of Punjab was held in September 1985 and that of Assam in December 1985. Simultaneous elections were also held to fill vacant seats in the Lok Sabha from these states. Consequent upon enactment of the State of Mizoram Act, 1986, a new state of Mizoram comprising territories which immediately before that date comprised Union Territory of Mizoram, came into existence. The new State was redelimited into 40 assembly constituencies. There was, however, no change in allocation of seats to the Rajya Sabha and the Lok Sabha from Mizoram. Poll to constitute a new assembly was held on 16 February 1987 and it was duly constituted on 20 February 1987.

Poll to constitute assemblies of Kerala and West Bengal, whose terms were due to expire on 24 June 1987 and 14 June 1987, respectively, was held on 23 March 1987. Poll to constitute new assembly of Jammu and Kashmir, which was dissolved on 7 September 1986, was also held on the same date. The term of Haryana assembly was to expire on 24 June 1987 and poll was held on 17 June 1987.

Erstwhile Union Territory of Arunachal Pradesh was granted statehood from 20 February 1987. Goa was made a full-fledged state from 30 May 1987 and Daman and Diu was retained as a union territory. Goa was given a seat in the Rajya Sabha and allowed to retain both of its seats in the Lok Sabha. Daman and Diu was given a seat in the Lok Sabha.

The term of Nagaland Assembly was to expire on 28 November 1987. Accordingly, a general election for assembly was held on 18 November 1987. Similarly, general elections to constitute new assemblies for Meghalaya and Tripura were held on 2 February 1988. Perhaps for the first time in the history of Indian elections, there was a tie of votes between two candidates in electoral battle at Marak constituency and the winner had to be decided by a draw of lots under Section 25 of the Representation of the People Act, 1951.

President's Rule imposed in Punjab on 11 May 1987 was extended beyond the six-month period. Assembly was subsequently dissolved on 6 March 1988. President's Rule was also imposed in Tamil Nadu on 30 January 1988 due to political instability after the death of the chief minister on 24 December 1987.

President's Rule was imposed in Nagaland on 7 August 1988. Assembly was dissolved on the same date. Poll to constitute new assembly was held on 21 January 1989 and it was duly constituted on 25 January 1989.

Mizoram assembly was dissolved by Presidential Proclamation on 7 September 1988. Poll was held on 21 January 1989 and new assembly constituted on 24 January 1989.

Tamil Nadu was put under President's Rule on 30 January 1988. Poll was held on 21 January 1989 and new assembly constituted on 27 January

1989. President's Rule was imposed in Karnataka on 21 April 1989. This was the third time Karnataka was brought under President's Rule which earlier was imposed in 1971 and 1977. A new assembly has been duly constituted there.

The term of eighth Lok Sabha was up to 14 January 1990. General election was held on 22, 24 and 26 November 1989 to the ninth Lok Sabha except Assam where revision of rolls was not completed by that time.

Simultaneous election was also held to constitute new assemblies in Andhra Pradesh, Goa, Karnataka, Sikkim and Uttar Pradesh. Ninth Lok Sabha was duly constituted on 2 December 1989, and the House met for the first meeting on 18 December 1989. The term of eighth Lok Sabha came to end on 17 December 1989.

Poll to constitute state assemblies in Himachal Pradesh, Rajasthan, Bihar, Arunachal Pradesh, Orissa, Madhya Pradesh, Maharashtra and Gujarat and in Union Territory of Pondicherry was held on 27 February 1990. New assemblies there have since been constituted.

PRESIDENTIAL AND VICE PRESIDENTIAL ELECTIONS

R. Venkataraman was elected eighth President in the election held on 17 July 1987. He assumed office on 25 July 1987. Dr. Shanker Dayal Sharma was elected unopposed as Vice President on 21 August 1987.

TABLE 3.3 NATIONAL PARTIES

	National Party	Symbol Reserved
	1	2
1.	Bharatiya Janata Party	Lotus
2.	Communist Party of India	Ears of Corn and Sickle
3.	Communist Party of India (Marxist)	Hammer, Sickle and Star
4.	Indian Congress (Socialist) (Dispute pending before Commission)	*Charkha*
4A.	Indian Congress (Socialist-Sarat Chandra Sinha)	*Charkha* within a rectangle
5.	Indian National Congress	Hand
6.	Janata Dal	*Chakra* (Wheel)
7.	Janata Party (Dispute pending before Commission)	*Haldhar within wheel* (*Chakra Haldhar*)
7A.	Janata Party (JP)	Farmer digging with *Mamti* within wheel
8.	Lok Dal (Dispute pending before Commission)	Farmer ploughing field *(Khet Jotata Hua Kisan)*
8A.	Lok Dal (B)	Farmer driving Bullock Cart

TABLE 3.4 STATE PARTIES

State/Union Territory	State Party	Symbol Reserved
1	2	3
Andhra Pradesh	Telugu Desam	Bicycle
Arunachal Pradesh	People's Party of Arunachal	*Mithun*
Bihar	Jharkhand Mukti Morcha	Bow and Arrow
Assam	1. Asom Gana Parishad	Elephant
	2. Plains Tribals Council of Assam	Cultivator cutting Crop
	3. United Minorities Front Assam (Dispute pending before Commission)	Ladder
Goa	Maharashtrawadi Gomantak Party	Lion
Haryana	1 Indian Congress (J)	Scales
	1A. Indian Congress (J)–Bhalla Group	Rectangle
	1B. Indian Congress (J)–Trikha Group	*Swastik* within circle
Jammu and Kashmir	1. National Conference	Plough
	2. Jammu and Kashmir Panthers Party	Bicycle
	3 Jammu and Kashmir Peoples Conference	Lion
Kerala	1. Kerala Congress	Horse
	2. Muslim League	Ladder
	3. Revolutionary Socialist Party	Spade and Stoker
Maharashtra	1. Peasants and Workers Party of India	Cart
	2. Shiv Sena	Bow and Arrow
Manipur	1. Kuki National Assembly	Two Leaves
	2. Manipur People's Party	Bicycle
Meghalaya	1. All Party Hill Leaders' Conference (Armison Marak Group)	Two Leaves
	2. Hill People Union	Rising Sun
	3. Hill State Peoples' Democratic Party	Lion
	4. Public Demands Implementation Convention	Spade
Mizoram	Mizo National Front	Tiger
Nagaland	1. Nagaland People's Council	Cock
	2. Nagaland Peoples Party	Elephant
Punjab	1. Shiromani Akali Dal	Scales
	2. Shiromani Akali Dal (Badal) (Interim recognition)	Bow and Arrow
Sikkim	1. Rising Sun Party	Rising Sun
	2. Sikkim Samgram Parishad	Elephant

1	2	3
Tamil Nadu	1 All India Anna Dravida Munnetra Kazhagam	Two Leaves
	2 Dravida Munnetra Kazhagam	Rising Sun
Tripura	1 Revolutionary Socialist Party	Spade and Stoker
	2 Tripura Upajati Juba Samity	Two Leaves
West Bengal	1 Forward Block	Lion
	2 Revolutionary Socialist Party	Spade and Stoker
Pondicherry	1 All India Anna Dravida Munnetra Kazhagam	Two Leaves
	2 Dravida Munnetra Kazhagam	Rising Sun
	3 Pondicherry Maanila Makkal Munnani	Scales

4 Defence

INDIA's defence policy aims at promoting and sustaining durable peace in the sub-continent and equipping the defence forces adequately to safeguard against aggression.

The Supreme Command of the armed forces is vested in President. The responsibility for national defence, however, rests with the Cabinet. Defence Minister is responsible to Parliament for all matters concerning defence. Administrative and operational control of the armed forces is exercised by Ministry of Defence and the three services headquarters. Ministry of Defence acts as the central agency for ensuring the coordinated development of the three services. It also conveys Government's decisions on policy matters to the three services headquarters for implementation and obtains financial sanction for defence expenditure. Defence expenditure to gross domestic product is around four per cent.

ORGANISATION

The three services function under their respective Chiefs of Staff. As on 31 March 1990, Chiefs of Staff were:

Chief of the Army Staff : General V.N.Sharma
Chief of the Naval Staff : Admiral J.G.Nadkarni
Chief of the Air Staff : Air Chief Marshal S.K.Mehra

ARMY

At the Army Headquarters in New Delhi, the Chief of the Army Staff is assisted by the Vice Chief of the Army Staff and seven other Principal Staff Officers, namely, Deputy Chiefs of the Army Staff, Adjutant General, Quartermaster General, Master General of Ordance, Military Secretary and Engineer-in-Chief.

The Army is organised into five commands, *viz.*, Southern, Eastern, Western, Central and Northern. Each command is under a General Officer Commanding-in-Chief who holds the rank of Lieutenant General. A General Officer Commanding-in-Chief is the commander of a demarcated geographical area and has both field and static formations under his command. The major field formations are Corps, Division and Brigade, commanded by a General Officer Commanding of the rank of Lieutenant General, a General Officer Commanding of the rank of Major General and a Brigadier, respectively. The major static formations are Areas, independent Sub-Areas and Sub-Areas. An Area is commanded by a General Officer Commanding of the rank of Major General and an independent Sub-Area and Sub-Area by a Brigadier.

The Army consists of a number of arms and services. These are: Armoured Corps, Regiment of Artillery, Corps of Engineers, Corps of Signals, Mechanised Infantry, Infantry, Army Service Corps, Military Nursing Service, Army Medical Corps, Army Dental Corps, Army Ordnance Corps, Corps of Electrical and Mechanical Engineers, Remount and Veterinary Corps, Military Farms Service, Army Education Corps, Intelligence Corps, Corps of Military Police, Judge Advocate General Department, Army Physical Training Corps, Pioneer Corps, Army Postal Service Corps, Recruiting Organisation, Record Offices, Colleges, Schools, Depots, Boys Establishments and Selection Centres, Territorial Army and Defence Security Corps.

NAVY

The Navy is responsible for defence and security of India's maritime interests and assets, both in times of war and peace. The Chief of the Naval Staff at the Naval Headquarters, New Delhi is assisted by four Principal Staff Officers, namely, the Vice Chief of Naval Staff, Chief of Personnel, Chief of Material and Deputy Chief of the Naval Staff.

The Navy has three commands *i.e.*, Western, Eastern and Southern located at Bombay, Vishakhapatnam and Cochin, respectively. Each command is headed by a Flag Officer Commanding-in-Chief of the rank of Vice Admiral. Western Command and Eastern Command have under them Operational Fleets *i.e.*, Western and Eastern Fleets comprising warships, submarines, aircraft and other support ships. Southern Naval Command is responsible for all training activities of the Indian Navy.

The Indian Navy is a well balanced three dimensional force consisting of sophisticated missile capable warships, two aircraft carriers, minesweepers, advanced submarines and the latest aircraft in its inventory. A nuclear-powered submarine, namely, *INS Chakra* has also been inducted for training purposes. Many of the warships are of indigenous design and have been constructed in Indian shipyards. These ships compare well with ships of similar capability produced by advanced countries.

The Navy's forces are maintained and supported by modern dockyard facilities encompassing state-of-the-art technology. At present, it has two major Naval bases at Bombay and Vishakhapatnam. The third Naval base is under development at Karwar.

COAST GUARD

The Coast Guard was constituted as an armed force in 1978 under the Coast Guard Act, to protect the maritime and other interests in the maritime zones of India covering an area of approximately 28 lakh square kilometre. Ministry of Defence exercises administrative control over it through Director General, Coast Guard with his headquarters presently located at New Delhi. The national maritime zones have been divided into three regions, namely, Western, Eastern and Andaman and Nicobar with regional headquarters located at Bombay, Madras and Port Blair, respectively. The regions are further sub-divided into ten districts, one in each of the eight coastal states on the mainland and two in the Andaman and Nicobar Islands. The Coast Guard facilities on shore are established in step with the development of the service and increase in its force level. Presently, the Coast Guard district headquarters/stations are functioning at Vadinar Okha and Porbandar in Gujarat, Cochin in Kerala, Mandapam in Tamil Nadu, Vishakhapatnam in Andhra Pradesh, Haldia in West Bengal, Diglipur and Campbell Bay in the Andaman and Nicobar Islands. A Coast Guard Air Enclave is functioning at Goa, while Coast Guard air stations/squadrons are operational at Daman and Calcutta. Future plans include establishment of Coast Guard district headquarters at New Mangalore, Goa and Paradwip and stations at Tuticorin, Kavaratti and Kanorta and air station at Tanjore. Efforts are being made to build up the force level of the service with the induction of specialised ships and aircraft to make the service functionally more effective.

The limited resources now available to the service are being developed in high risk area of illegal fishing, smuggling, search and rescue, anti-pollution, etc. In 1989 (up to 30 November) a total of 33 trawlers were apprehended. The Coast Guard ships and aircraft regularly assist the Customs authorities in anti-smuggling operations and have frequently been responsible for confiscating contraband goods. Contraband worth Rs 61.33 crore had been confiscated jointly by Customs authorities and Coast Guard ships last year. Contraband worth Rs 58 crore had been confiscated up to January 1990.

AIR FORCE

The Air Force is organised both on functional as well as geographical basis. There are five operational commands. These are: Western Air Command, South-Western Air Command, Central Air Command, Eastern Air Command and Southern Air Command. In addition, Maintenance Command and Training Command are two functional commands.

At the Air Headquarters in New Delhi, the Chief of the Air Staff is assisted by the Vice Chief of the Air Staff, Deputy Chief of the Air Staff, Air Officer Incharge Administration, Air Officer Incharge Maintenance, Air Officer Incharge Personnel and Inspector General Flight Safety and Inspection. These six Principal Staff Officers are assisted by Assistant Chiefs of the Air Staff.

Today, the Air Force consists of an array of modern aeroplanes and is comparable to any other air force in the world. Its fleet consists of fighter bombers, air superiority fighters, interceptors, transport and logistic aircraft and helicopters. The fighter force comprises *Hunters, Ajeets* as older generation aircraft whilst *MiG-21* variants, *MiG-23s, MiG-25s, MiG-27s* and *Jaguar* provide modern generation strike aircraft. *MiG-29s* and *Mirage-2000* provide the Air Force with a present generation air defence aircraft. The ageing light bomber, *Canberra* is presently used in ancillary roles. Transport force consists of *IL-76s, AN-32s, Boeing-737* and indigenously produced *HS-748. Dornier-228* has replaced the *Otter* aircraft and is manufactured under licence by HAL. The helicopter force has grown and most modern helicopters of the world are in its inventory. It consists of *MI-8, MI-17s* and *MI-26s.* In addition, the force has been supplemented with MI-25s which is used as an attack helicopter. This helicopter has done yeoman service for the IPKF in Sri Lanka. *Chetak/ Cheetah* for Air Force are manufactured by HAL. They are used in the roles of airborne Forward Air Controller (FAC), Anti-Tank Guided Missile (ATGM) and Search and Rescue (SAR).

HAL manufactured *HPT-32* is used as the basic trainer. *HJT-16 (Kiran)* and Polish *Iskara* aircraft are used as trainers in the applied stage of training. *HS-748* is used as transport aircraft trainer.

The Air Force *MI-8* helicopters are specially modified to undertake tasks in Antarctica. *MI-17* and *Chetak* are used for high altitude operations. They provide logistics support to ground forces.

COMMISSIONED RANKS

Following are the commissioned ranks in the three services; each rank is shown opposite to its equivalent in the other services:

Army	Navy	Air Force
General	Admiral	Air Chief Marshal
Lieutenant General	Vice Admiral	Air Marshal
Major General	Rear Admiral	Air Vice Marshal
Brigadier	Commodore	Air Commodore
Colonel	Captain	Group Captain
Lieutenant Colonel	Commander	Wing Commander
Major	Lieutenant Commander	Squadron Leader
Captain	Lieutenant	Flight Lieutenant
Lieutenant	Sub-Lieutenant	Flying Officer
Second Lieutenant	Acting Sub-Lieutenant	Pilot Officer

RECRUITMENT

All citizens of India are eligible for recruitment to the armed forces, provided they meet the prescribed physical, medical and educational standards.

ARMY

For recruitment to the Army, the country has been divided into 12 Zonal Recruiting Offices (ZROs) and 71 Branch Recruiting Offices (BROs). To keep pace with the modernisation of the Army, it was decided in 1986 that the educational qualification for enrolment in the Army will be class X for Other Ranks in Normal Entry Rate (NER), Matric Entry Rate (Technical), Matric Entry Rate (Clk/SKT) and Graduation for Hav Clerks/AEC Hav. Few trades in Other Ranks like washerman, *Safaiwala*, barber and so on, could be recruited as Non - matric. This educational concession has also been extended on a selective basis to certain tribes and backward classes from time to time. For Commissioned Officers, educational qualification is Class XII for entry into National Defence Academy, Bachelor's degree for Direct Entry, Engineering degree for Technical Graduates and Master's degree for AEC for entry into Indian Military Academy. The overall age bracket for entry into Army for Other Ranks is between 16-25 years and for that of Officers it is $16^1/_2$ to 27 years, depending upon the type of entry.

Consequent to upgradation of educational qualifications for recruitment into the Army for Normal Entry Rate (NER) categories to Class X, a common entrance examination for all entries *i.e.*, NER/Matric Entry Rate (MER) entries, has been introduced from 1 October 1989. The present system will dispense with submission of different applications for NER and MER categories and will make the applicants eligible for both categories depending upon their performance in written examination. Zonal Recruiting Offices invite applications from prospective candidates after wide publicity and process them on a quarterly basis *i.e.*, April to July, August to November and December to March. Eligible candidates are called for screening, medical, physical and written examinations. Emphasis is laid on physical fitness, endurance and intelligence and candidates have to go through stringent tests in order to qualify, before a final merit list is made. This system has facilitated selection of the best available manpower into the Army.

Service personnel of the Army, who have completed five years of service and are between 22 and 27 years of age are eligible for entry into Army Cadet College Wing (ACC Wing), Dehra Dun, where they are initially trained before joining Indian Military Academy. For entry into the ACC Wing, prospective candidates have to qualify a written test conducted by the Army Headquarters and thereafter to qualify at the Services Selection Board. Successful candidates are medically examined before induction into ACC.

Regimental Commission was introduced in the Army in 1984. Junior Commissioned Officers and Havildars other than those in the Clerical Category, who are between 36 and 42 years of age, are eligible for grant of Regimental Commission. Candidates selected by services selection boards undergo a 13-week training at Officer Training Academy, Madras. They are granted Commission in the rank of Lieutenant.

NAVY

Recruitment for sailors in the Navy is done through Army Recruiting Organisation comprising 12 ZROs and 71 BROs and 16 Naval Recruiting Establishments all over the country.

Sailors are recruited from the age group of 15-20 depending upon the category, the minimum educational qualification varying from the elementary stage (for cooks and stewards) to matriculation for artificer apprentices and direct entry sailors. Artificer apprentices are imparted highly skilled technical training in different naval establishments. Direct entry artificers are recruited from among those who have secured a diploma in any branch of engineering (electrical/radio/mechanical/ aeronautical/ automobile) and who are in the age group of 18-22. Depending upon the particular type of entry, recruitment is done twice/thrice annually where candidates have to appear for written test, interview and a medical examination.

AIR FORCE

Recruitment of airmen in the IAF is made on all-India basis both in technical and non-technical categories. Educational qualifications for different posts vary from matriculation to post-graduation and age 16 to 28 years. Applications from eligible candidates are invited through advertisements published in newspapers twice a year. Selection tests are conducted at various places through 13 Airmen Selection Centres. These are centrally controlled by the Central Airmen Selection Board, New Delhi. Candidates who pass the written test and are found medically fit, are placed in the all-India merit list.

The Air Force provides 41 technical and non-technical trades suited to different aptitudes of the candidates. Selection tests are conducted at various centres all over the country.

TRAINING INSTITUTIONS

NATIONAL DEFENCE COLLEGE

National Defence College, New Delhi is dedicated to promoting greater understanding amongst military and civil authorities and preparing officers for higher responsibilities by enabling them to study together those aspects of national and international affairs which significantly influence the country's national security, foreign and defence policies. The members attending the $10^1/_2$ month course which commences in January, are senior officers of the armed forces, civil services and senior service officers from friendly countries. The College has officers from the USA and the USSR besides other foreign countries. The present course strength is 65.

SAINIK SCHOOLS

Sainik schools prepare boys academically and physically for entry into National Defence Academy. There are 18 sainik schools in the country, one in each state, except in Nagaland, Meghalaya, Tripura, Sikkim, Arunachal Pradesh, Mizoram and Goa. The schools are affiliated to the Central Board of Secondary Education and follow the 10+2 pattern. Admission is made to

Class VI on the basis of an All-India Entrance Examination held every year in February, to which boys in the age group of 10-11 years are eligible to appear. To date, 4,332 boys from these schools have been selected for National Defence Academy through entrance examinations and Services Selection Board.

RASHTRIYA INDIAN MILITARY COLLEGE

Run on the lines of public schools, Rashtriya Indian Military College, Dehra Dun, prepares boys for entry into National Defence Academy.

NATIONAL DEFENCE ACADEMY

National Defence Academy (NDA). Khadakwasla conducts a three-year combined basic military training course for potential officers of the three services, after which they receive specialised training at their respective service academies. The cadets are also imparted academic education and awarded Bachelor's degree by Jawahar Lal Nehru University to which NDA is affiliated. Admission to the Academy is made on the basis of a qualifying bi-annual written examination conducted by Union Public Service Commission at different centres in the country, followed by assessment by Services Selection Board. Boys who have passed the senior secondary examination *i.e.*, 10+2 or an equivalent examination and are between $16^1/_2$ and 19 years of age on the first day of the month in which the course starts, are eligible for admission.

INDIAN MILITARY ACADEMY

Indian Military Academy (IMA), Dehra Dun is the premier institution for training officers for the Army. Its intake includes cadets passing out of the National Defence Academy, Khadakwasla, who receive one year training before being commissioned. IMA also conducts $1^1/_2$ year course for the direct entry graduates, who qualify in the Union Public Service Commission's Combined Defence Services' examination and at the Services Selection Board. Graduates selected for specialised commission in various technical arms are given one year's training at the IMA. A year's training is also imparted at the IMA to serving/regular Army Junior Commissioned officers and Non-commissioned officers, who have successfully completed the three-year training course at the Army Cadets College. On completion of training at the IMA, these personnel are granted Commissions in the Army.

OFFICERS TRAINING ACADEMY

Officers Training Academy (OTA), Madras trains cadets for Short Service Commission in the Army. OTA holds a 44-week course for graduates who qualify in the examination conducted by the Union Public Service Commission and the Services Selection Board and who are between 19 and 25 years of age on the first day of the month in which the course starts.

DEFENCE SERVICES STAFF COLLEGE

Staff College, Wellington, Tamil Nadu provides training to officers of the Army, Navy and Air Force for holding staff appointments in their own services as well as in the headquarters of inter-services organisations. About 400 officers from the three services including 30 officers from friendly foreign countries and five civilian officers, are trained every year. The course commences in the month of June.

OTHER TRAINING CENTRES AND SCHOOLS

College of Combat, Mhow conducts the higher command, senior command and junior command courses for Army Officers. College of Military Engineering, Kirkee (Pune) imparts training to the Officers and Other Ranks in all aspects of military engineering. Long courses of over two year duration are also conducted to train Officers up to the degree standard.

Military College of Telecommunication Engineering, Mhow imparts basic and advanced technical training in telecommunications and signal tactics. Armoured Corps Centre and School, Ahmednagar conducts training in tactical handling of armoured fighting vehicles and their driving and maintenance. School of Artillery, Deolali provides training in field branch and air defence artillery.

Infantry Schools at Mhow and Belgaum conduct courses for infantry officers and men. College of Materials Management, Jabalpur imparts specialised training in materials management including ammunition and explosives and also in contemporary materials management techniques.

Mechanised Infantry Regimental Centre conducts basic and technical training for recruits of mechanised infantry. In addition it runs basic and instructor courses on ATGMs for Officers, JCOs and Other Ranks of mechanised infantry. It also carries out conversion training of units when they are converted to mechanised infantry or when change in equipment is involved.

Some of the other Army training centres and schools are High Altitude Warfare School, Gulmarg; Army Service Corps School, Bareilly; EME School, Vadodara; Military College of Electronics and Mechanical Engineering, Secunderabad; College of Defence Management, Secunderabad; Remount and Veterinary Corps Centre and School, Meerut; Army Education Corps Training College and Centre, Pachmarhi; Army School of Physical Training, Pune; Army/Air Transport Support School, Agra; Army Clerks Training School, Aurangabad; Military Intelligence Training School and Depot, Pune; Army School of Mechanical Transport, Bangalore; Corps of Military Police Centre and School, Bangalore; Counter Insurgency and Jungle Warfare School, Vairengte; Armed Forces Medical College, Pune; Institute of National Integration, Pune, and Army Medical Corps Centre and School, Lucknow.

ARMED FORCES MEDICAL COLLEGE

Armed Forces Medical College (AFMC), Pune was established on 1 May

1948, as an institution for Post-graduate studies for medical officers of the armed forces; conducting technical training for para-medical personnel, and carrying out research. A Graduate wing to prepare students for the MBBS degree of Pune university was started in August 1962. From 1982 onwards, the annual intake to MBBS courses has increased to 130 students including 25 girls. All successful graduates have Permanent Commission service liability, except few girls who have liability for Short Service. The selection of students is made through an all-India competition. Government has authorised free rations and allied facilities to the medical cadets from January 1989. The stipend being paid to them has been discontinued. Another notable landmark in the growth of the College was the addition of the College of Nursing in 1964, to impart training to 30 students annually, leading to the B.Sc. (Nursing) degree of Pune university.

NAVAL ESTABLISHMENTS

The principal training units/establishments for the general service officers and men of the Navy are located at Cochin. These units impart training in gunnery, navigation, anti-submarine warfare, communications, aviation etc. Other major training establishments are *Naval Academy*, Goa-basic training for Naval cadets and Direct Entry Officers of all branches. *INS Chilka*, Orissa-basic training for sailors and artificers. *INS Shivaji*, Lonavla-basic engineering training of technical officers, specialised training for all engineering branch officers and sailors and artificers. *INS Valsura*, Jamnagar-specialised training for electrical branch officers and sailors. *INS Satavahana*, Vishakhapatnam-submarine training for all officers and sailors of submarine cadre. *INS Hamla*, Marve, Malad, Bombay-training of officers and sailors of S&S Branch. *INS Kunjali*, Bombay-regulating branch training. *INS Asvini* (INM), Bombay-medical assistants' training, and *INS Agrani*, Coimbatore-management and leadership training for senior sailors.

AIR FORCE TRAINING INSTITUTES

Air Force trainees are inducted from four sources, *viz.*, National Defence Academy, Ex-airmen, National Cadet Corps and Direct Entry selection by UPSC. All non-NDA trainees undergo pre-course training at Air Force Station, Begumpet (Secunderabad) before commencing the basic stage of flying training. The basic stage of flying training (Stage I) for pilots is imparted at the Air Force Academy, Hyderabad, followed by advanced flying training (Stage II) at Air Force Station, Bidar, Karnataka and Air Force Station, Hakimpet, Andhra Pradesh. Wings and Commissions are conferred on successful completion of Stage II of flying training. Thereafter, the trainees are bifurcated for applied stage (Stage III) of training fighter stream at Hunter and MiG operational conversion units, transport stream at Air Force Station, Yelahanka, Karnataka and helicopter stream at the Helicopter Training School, Hakimpet.

Basic and advanced navigation training and air signal training is conducted at the Navigation and Signal School, Hyderabad. Non-technical ground duty officers and air traffic control officers are trained at the Air Force Academy, Hyderabad. Flying Instructors' School at Tambaram, Madras, was established to train flying instructors of all categories. College of Air Warfare, Secunderabad conducts higher joint services and air warfare studies.

Air Force Administrative College, Coimbatore, Tamil Nadu conducts advanced courses for ground duty officers of non-technical branches and Junior Commanders Course for all branches. Air Force Technical College, Jalahalli, Bangalore trains officers of technical branches. Selected airmen of Warrant Officer rank are trained at the Air Force Technical College and the Air Force Administrative College depending on their branch before awarding Branch Commission.

Airmen for radio, radar, electrical, instrument and photo branches are trained at Jalahalli. Airmen for mechanical stream and supporting non-technical trades pertaining to airframe, engine, weapons, safety equipment and workshop are trained at Tambaram. After the basic training at various institutes, technicians are imparted technical training for particular type of aircraft/system. The training has been restructured to have more'Hands On' approach and is planned to be accomplished in seven technical type training schools. One of these schools has already started imparting training at Chandigarh for *Vijay, Rakshak* and *Bahadur* aircraft. The other six such schools will be opened shortly. All tradesmen belonging to motor transport are trained at Avadi, Madras. All supporting non-technical tradesmen like clerks (general duties), clerks (equipment account), clerks (pay accounts), catering assistants, education instructors, IAF Police and physical fitness instructors are trained at Sambre, Karnataka.

Ground Training Institutes at Vadodara and Barrackpur train personnel for the maintenance and operation of surface-to-air missiles and associated equipment. Paratroopers Training School, Agra was established for training of paratroopers. Medical and aircrew officers and para-medical staff receive specialised training at the Institute of Aviation Medicine, Bangalore.

PRODUCTION AND SUPPLIES

A substantial part of defence stores needed by the Services is now being developed and produced in the country. The responsibility for this has been entrusted to Department of Defence Production and Supplies in Ministry of Defence. The Department directs and coordinates production of material and equipment required by the armed forces. It carries out its responsibility through ordnance factories and eight defence public sector undertakings, Quality Assurance Organisation, Directorate of Technical Development and Production and Directorate of Standardisation.

ORDNANCE FACTORIES

Main objective of 38 ordnance factories with a workforce of about 1.77 lakh is manufacturing of defence stores needed by our armed forces. These factories widely dispersed over the country on strategic consideration, function inter-dependently.

Ordnance factories produce a wide range of items required by defence services, para-military forces and civil police. The range of products manufactured by these factories includes field guns, anti-aircraft guns, mortars, small arms, small arms ammunition, medium calibre and high calibre ammunition, rockets, bombs, grenades, mines, battle tanks, infantry combat vehicles, transport vehicles, high altitude and combat clothing, optical and fire control equipment, leather items, supply and para-dropping parachutes, engineering equipment like bridges and various knitted and woven items.

Ordnance factories produce stores needed by armed forces either through licensed production in collaboration with foreign firms or through indigenous development by Defence Research and Development Organisation (DRDO). To meet the growing needs of armed forces for new generation of armament systems, several new products are being developed in ordnance factories in close collaboration with the design agencies of DRDO. Notable among these are para-droppable artillery guns, opto-electronic devices, battle tanks, illuminating and signal ammunition, liquid fuels for rockets and missiles. Ordnance factories are also manufacturing and supplying equipment to the Railways and many public sector undertakings.

Over the years value of production in ordnance factories had risen significantly from Rs 5 crore before independence to Rs 2,242 crore in 1988-89. By March 1989, 31 on-going projects involving an investment of over Rs 2,317 crore, were in various stages of implementation. These included installation of four new factories. Total defence exports comprising defence equipment and stores stood at Rs 80.27 crore against the target of Rs 69.71 crore (including deemed exports) in 1989-90.

DEFENCE UNDERTAKINGS

There are eight public sector enterprises under the Department. These are: (i) Hindustan Aeronautics Ltd. (HAL), (ii) Bharat Electronics (BE), (iii) Bharat Earth Movers Ltd. (BEML), (iv) Mazagon Dock Ltd. (MDL), (v) Garden Reach Shipbuilders and Engineers (GRSE), (vi) Goa Shipyard Ltd. (GSL), (vii) Bharat Dynamics Ltd. (BDL) and (viii) Mishra Dhatu Nigam Ltd. (MIDHANI). Seven of these undertakings are wholly-owned by Government. In GSL, MDL owns 53.4 per cent of the shares. Of the remaining shares, 3.6 per cent are held by private shareholders and the rest by Government. These undertakings have a workforce of over 1.09 lakh and capacity for design development and production of a wide variety of equipment and components to meet the requirements of defence services, besides catering to the needs of civil sector.

Hindustan Aeronautics Ltd., set up in 1964, has 13 divisions located in six states with its corporate office at Bangalore. The principal function of the Company is to design, manufacture, repair and overhaul various types of aircraft, helicopters and related aero-engines, avionics, instruments and accessories. HAL is currently manufacturing Jaguar, Dornier-228 and MiG-27M aircraft, Cheetah and Chetak helicopters and various types of aero-engines. HAL is also engaged in the design and development of an Advanced Light Helicopter. Besides, the Company is participating in the design and development of the Light Combat Aircraft. Indigenisation activities are being actively pursued in order to progressively reduce the import content of various products of HAL. It is also making efforts to increase export of its products.

Bharat Electronics was established in 1954 with a single unit at Jalahalli, Bangalore, to develop into an indigenous electronics industry. Since then, it has emerged as a leader in professional electronics. It has seven units at Bangalore, Ghaziabad, Pune, Machilipatnam, Taloja, Panchkula and Kotdwara. Two support centres also exist at Hyderabad and Madras. The items manufactured by the Company include low and high power communication equipment in the HF, UHF, VHF and microwave ranges, high power static and mobile radars, static and mobile troposcatters with line of sight equipment, broadcast transmitters, gun control equipment, weapon control system for frigates and electronic voting machines. The components produced include X-ray tubes, black and white TV picture tubes, image converter tubes, germanium and silicon semi-conductors, integrated circuits and magnesium manganese dioxide batteries.

Bharat Earth Movers Ltd. (BEML) incorporated in 1964 commenced operations in January 1965. The Company manufactures heavy earth moving equipment such as excavators, bulldozers, dumpers, loaders, scrapers, motorgraders, cranes, etc., sophisticated special assemblies like planetary axles, power shift transmissions and control valves, integral coaches for Railways, in its three production units at Bangalore, Kolar Gold Fields and Mysore. The Company is setting up facilities at Mysore to manufacture diesel engines in the range of 90 to 1000 horse power for captive use on its earthmoving equipment. BEML is also engaged in manufacturing tank transporting vehicles in addition to the trailers already being produced by it for defence services. It also supplies aircraft towing tractors to the Air Force and at present is manufacturing transmissions and allied assemblies for combat vehicles.

Mazagon Dock Ltd., Bombay, Goa Shipyard Ltd., Goa and Garden Reach Shipbuilders and Engineers Ltd., Calcutta are leading shipbuilding and shiprepairing units in the defence public sector having facilities to build sophisticated warships like frigates, seaward defence boats, survey vessels, offshore and onshore patrol vessels. They also build merchant ships like cargo vessels, dredgers, tugs, floating cranes, barges and various types of passenger-cum-cargo vessels. MDL has constructed three indigenously designed *Godavari* class frigates. The first of the series, *INS Godavari* was commissioned in December 1983. The second corvette *INS Kuthar* was launched in January 1988. The second frigate *INS Gomati* was commissioned in April 1988.

GRSE, Calcutta, delivered the first bulkcarrier *Lokpriti* to the Moghul Line Ltd. in December 1981. The second one was commissioned during 1984-85. It has already handed over two survey vessels *Sandhayak* and *Nirdeshak* to the Navy. In addition, it has delivered a number of seaward defence boats and fast patrol craft to the Navy and the Coast Guard. Landing ship tank *INS Magar* manufactured by GRSE, was commissioned in July 1987.

GSL has developed from a shiprepairing unit into a medium-sized shipyard on west coast, building seaward defence boats, landing craft and survey craft for the Navy.

Bharat Dynamics Ltd. was incorporated at Hyderabad as a public sector undertaking in 1970 with the prime objective of establishing a production base for guided missiles and for the development of missile production technology in the country. The Company undertook the manufacture of SSIIBI, the first generation anti-tank missile under licence agreement with M/s Aerospatiale of France. The project was completed in 1982-83. The indigenisation achieved in the manufacture was to the extent of about 73 per cent. Successful completion of SSIIBI spearheaded a massive expansion in undertaking various other missile systems. The Company commenced the manufacture of second generation anti-tank missile, namely, *Milan* in 1985. The progressive increase in the indigenisation of this missile system is still continuing. The Company has diversified and produced rockets and other electronic systems for the Navy and the Army. Recently, the Company has also undertaken production of another type of long range missile under licence from the USSR. Considering the expertise and sound technological base it has, BDL has been nominated as prime production agency for the manufacture of various missile systems of the Integrated Guided Missile Development programme of Defence Research and Development Organisation.

Mishra Dhatu Nigam Ltd., Hyderabad was incorporated in 1973 to create indigenous capabilities for manufacture of special metals and super alloys required for strategic, sophisticated industries like aeronautics, space, defence, atomic energy, chemical engineering, etc. The commercial production of the Company started in July 1983. MIDHANI's product range includes super alloys, titanium alloys, maraging steels, heat resistance alloys, soft magnetic alloys, controlled expansion alloys, tungsten, molybdenum, etc., in a wide variety of mill forms.

Value of production estimated under defence public sector undertakings during 1989-90 was expected to rise to over Rs 2,800 crore compared to over Rs. 2,522 crore the year before. Defence production units also procure from civil sector a very large quantity of basic raw materials. Total value of purchases made by these units from 1986-87 to 1988-89, amounted of Rs 2,088 crore. This helped in the utilisation of the capacity available in civil sector.

RESEARCH AND DEVELOPMENT

Defence Research and Development Organisation (DRDO) was established in 1958 by amalgamating Defence Science Organisation and some of the technical development establishments. A separate Department of Defence Research and Development was formed in 1980 which now administers DRDO and its 47 laboratories/establishments.

Department of Defence Research and Development formulates and executes programmes of scientific research, design and development, test and evaluation in the fields of relevance to national security leading to the induction of new weapons, platforms and other equipment required by the armed forces. It also functions as the nodal agency for the execution of major development programmes of relevance to Defence by the integration of research, development, testing and production facilities with the national scientific institutions, public sector undertakings and other agencies. It functions under the control of Scientific Adviser to Defence Minister.

Research and development activities at DRDO cover important demarcated disciplines, aeronautics, rockets and missiles, electronics and instrumentation, combat vehicles, engineering, naval systems, armament technology including explosives research, terrain research, works study, systems analysis and life sciences including high altitude agriculture, physiology, food technology and nuclear medicine. DRDO undertakes projects in all these disciplines either in response to the expressed requirements of Services (staff projects) or in anticipation of a future need for national defence (technology development projects).

DRDO has registered significant achievements in its various activities. Its recent achievements have been the successful flight testing of surface-to-surface missile *Prithvi* and the re-entry technology demonstrator *Agni*. A sophisticated low level warning radar has been successfully developed and inducted into Services. An indigenously designed automated factory has been set up to manufacture Fin-Stabilised Armour Piercing Discarding Sabot (FSAPDS). The other notable landmarks of DRDO have been surface-to-air missile, *Trishul*, Indian Field Gun Mk-I and II, Main Battle Tank-*Arjun*, Bridge Layer Tank-*Kartik*, Flight Simulators for aircraft, hith-technology EW systems, communication systems, night vision devices, new family of light weight small arms system, cluster weapons system, advanced material/composites for defence applications, advanced sonar systems, rockets for ship defence, etc.

In addition, several high technology projects which include Light Combat Aircraft (LCA), Gas Turbine Engine, Pilotless Target Aircraft (PTA), are at various stages of development in DRDO. The successful completion of these projects would greatly contribute towards self-reliance in critical areas of defence technologies.

DRDO will also soon come out with a number of special armaments for use by the three services. The anti-tank 'FSAPDS' ammunition for 105 and 120 mm calibres has already been developed and tested. Development of sea mines for use against submarines and ships is in advance stage.

Upgraded version of the mine for underwater work by naval divers and frogmen has been developed and is undergoing trials by the Navy. An advanced micro-processor based naval mine is also in final stages of technical trials. Among other armaments in advance stages of development/ trial at DRDO laboratories are a mobile target to simulate submarines for naval exercise, a special-purpose double action mine fuse and a surface-to-surface multi-barrel rocket launching system.

A defence technology park is to be set up in Bangalore to facilitate transfer of technologies by DRDO laboratories to industries. This will result in indigenous production of high technology items needed by the armed forces.

TERRITORIAL ARMY

Territorial Army is a citizens' volunteer force, which functions on a part time basis. It was established in 1949 and is designed to give the citizens an opportunity to receive military training during their spare time. The Territorials serve the country in times of emergency by relieving the Army of static duties and help the civil authority in dealing with natural calamities, maintaining essential services in critical situations which threaten the life of the community or security of the country and providing units for the regular Army, if and when required. It is composed of infantry units and certain technical units such as railway engineers, general hospitals and oil battalions. The technical units of Territorial Army are Departmental Units comprising officers and men from the concerned department, where such a unit is raised. In 1983, ecological units were raised as a part of the Territorial Army to restore the ecological balance in certain regions of the country, which is a unique experiment in this field. Presently, there are three ecological units, comprising ex-servicemen, which are deployed in Mussoorie hills, Indira Gandhi Canal in Rajasthan and Jammu region.

All able-bodied persons in the age group of 18-42 (with relaxation in the upper age limit for entry into certain technical units) and possessing the requisite qualifications are eligible to join as Officer or as Other Ranks.

NATIONAL CADET CORPS

National Cadet Corps (NCC) established in 1948 is the premier youth organisation in the country today. Students of universities, colleges and schools can join NCC on a voluntary basis. It has a strength of approximately 11.2 lakh cadets (both boys and girls) with 4.2 lakh cadets in senior and seven lakh cadets in junior division, spread over 6,674 schools and 3,658 colleges and 127 universities. It aims at developing qualities like leadership, comradeship, spirit of sportmanship and the ideals of service among the youth. It also caters for the creation of a force of disciplined and trained manpower, which in a national emergency could be of assistance to the country. It also aims at training students with a view to developing in them officer like qualities, thus enabling them to join the armed forces. The NCC cadets, however, have no liability for active military service.

Directorate General of NCC located at Delhi, under the control of Ministry of Defence heads the organisation and is responsible for the functioning of the NCC in the entire country. NCC is headed by Director General of the rank of Lieutenant General. He is assisted by two Additional Directors General of the rank of Major General and their equivalent from Navy/Air Force. At the state level, the country has been divided into 16 NCC directorates. Each directorate is headed by a Deputy Director General of the rank of Brigadier (Army)/Air Commodore (Air Force)/Commodore (Navy). The NCC has two training establishments also-Officer Training School (OTS) at Kamptee, Maharashtra for the training of male part time Officers and Women Officers Training School (WOTS) at Gwalior for lady part time Officers, before they are commissioned.

NCC has been divided into three divisions, namely, senior and junior division (for boys) and girls division. The senior division and junior division are further divided into the Army, Navy and Air Wings. The girls division is divided into senior wing and junior wing for college and school going girls respectively.

Training in the NCC can be divided into four main categories. The first is institutional training, imparted in schools and colleges throughout the year. The second is the camp training, which is imparted in various outdoor training camps. In addition, there is the adventure training and participation in social service activities. Besides theoretical and practical training in NCC units, the cadets also go through training camps at various levels. Camps, however, are not the end of training. Adventure activities have now become an integral part of NCC training. Cadets today scale mountains, trek through exotic places, sail down the rivers and open seas and participate in other activities like para-sailing, gliding, powered flying, sky diving, hang gliding, water skiing and scuba diving, etc. In order to foster international understanding amongst the cadets, youth exchange programmes with some countries like UK, Canada, Singapore, Sri Lanka and Bangladesh are being conducted on a reciprocal basis. NCC cadets are also being sent on foreign cruises on Indian Naval ships as part of attachment training.

To widen the horizon of the young cadets and also to give them an opportunity to forge bonds of national brotherhood, national integration camps for them are being organised since 1948, wherein boy and girl cadets from different states stay together. Some of the cadets also stay with local families. The programme envisages the working together of cadets on development projects with a rural bias. They also participate in social service activities including diverse activities as tree plantation, blood donation, anti-dowry and eye donation pledges, visit to cheshire homes, slum clearance, village upliftment and adult literacy/anti-leprosy drive. The cadets also render voluntary national service during natural calamities.

WELFARE OF EX-SERVICEMEN

To maintain a youthful profile of the armed forces, about 50,000 to 55,000 Service personnel are retired or released every year at a comparatively young age. Because of the early retirement they need a second career so that they can continue to earn livelihood up to the age of 58, as their counterparts in civil services do. Directorate General of Resettlement (DGR) under Ministry of Defence, has the overall responsibility for the resettlement and welfare of ex-servicemen including Officers, disabled, their widows and dependents. There are four zonal resettlement directorates in Eastern, Central, Western and Southern Army Commands. Each state has a Rajya Sainik Board and a number of Zila Sainik Boards for this purpose. No other country in the world has such an elaborate organisation for resettlement of ex-servicemen. The main resettlement and welfare activities are training, employment, self-employment and welfare schemes.

TRAINING

Resettlement training courses are organised for the retiring/retired Service personnel in various disciplines in government and private institutions to assist them to find gainful employment or self-employment after superannuation.

Approximately 50 training courses for Officers and 350 for personnel below Officer rank are conducted every year. Officers bear 40 per cent of the cost of training while for JCOs and ORs the training is free. Training period up to 90 days is treated as on duty. Duration of training courses vary from ten days to three years. These training courses organised on demand encompass a variety of subjects including technical, non-technical and agro-based vocations. Long term correspondence courses like MBA also are included in the programme. On-the-job training is imparted by various public sector undertakings in ten vocational trades for nine months to 1,000 personnel every year. Training is also imparted by ITIs to 1,000 retiring personnel every year under the 'pre-cum-post release training schemes'. Under the scheme Preparing Ex-servicemen for Self-Employment (PEX-SEM), training, guidance and financial assistance is given to ex-servicemen in their respective districts to set up self-employment ventures. The scheme is presently operative in 40 districts and 2,000 personnel are trained every year. Six Rajya Sainik Boards organise training for 400 ex-servicemen every year on behalf of DGR, in various vocations and disciplines. Disabled ex-servicemen/servicemen are imparted technical and non-technical training at Queen Mary's Technical School, Pune, to prepare them for suitable employment/self-employment. Over 6,000 disabled defence personnel have so far received training in this school.

EMPLOYMENT

Employment constitutes the principal method of resettlement of ex-servicemen. For this purpose, Central government has reserved 10 per cent of Group 'C' and 20 per cent of Group 'D' posts for ex-servicemen in all its ministries and departments. The corresponding percentage in Central public undertakings and nationalised banks in these categories is $14^1/_2$ per cent and $24^1/_2$ per cent respectively. In addition, 10 per cent posts of Assistant Commandants in Central para-military forces have been reserved for ex-servicemen.They are also re-employed in Defence Security Corps and Ecological Territorial Army Task Forces. Most of the states have also provided reservation of posts for ex-servicemen, which varies from 2 to 20 per cent. The ex-servicemen are allowed relaxation in upper age limit and educational qualifications for employment against reserved vacancies. Zila Sainik Boards and employment exchanges sponsor the names of ex-servicemen for employment in private sector also. Service personnel, disabled during war or peace and where the disability is attributable to service, are accorded priority I for employment. In case the disabled person is unable to take up employment himself, two members of his family are accorded priority II A for employment. For widows or two dependents of soldiers killed in war or peace where the death is attributable to military service, priority II A is accorded for employment assistance. Widows/ dependents of soldiers who die in harness are eligible for benefits of compassionate appointment.

Full military pension is exempted, while fixing the pay of ex-servicemen on re-employment in case of personnel below Officer level. In case of Officer, Rs 500 is exempted. The limit for pension plus pension equivalent of gratuity and refixed pay has been raised from Rs 3,500 to Rs 8,000.

During the year 1988, a total of 21,562 ex-servicemen were given employment in central, state, public sector undertakings, banks and private sector.

SELF-EMPLOYMENT

Since it is not possible to give jobs to all retiring defence personnel, a number of schemes have been implemented by states and the Centre for encouraging ex-servicemen to get resettled in various self-employment ventures like: (a) reservation of industrial plots and sheds–to help ex-servicemen to set up industries, special quota is reserved for allotment of industrial plots and sheds by 12 states/union territories. Three states give priority to ex-servicemen for such allotment; (b) interest subsidy on bank loans-interest on bank loans disbursed to ex-servicemen is subsidised by Rajya Sainik Boards out of their welfare funds; (c) price subsidy-to encourage ex-servicemen to set up small scale industry, ten per cent subsidy with a maximum monetary limit of Rs 50,000 in a year for a period of five years is given on the value of items provided by them to Ministry of Defence on rate contract basis; (d) scheme for self-employment for ex-servicemen (SEMFEX-I)–this scheme was launched on 1 April 1987 in collaboration with the Industrial Development Bank of India (IDBI). Under this scheme projects up to Rs 12 lakh are financed of which ten per cent is paid by the promoter, fifteen per cent soft seed capital assistance at one per cent is given by IDBI and DGR and remaining fifteen per cent is given by State Financial Corporation (SFC) at 12.5 per cent to 13.5 per cent interest. The scheme has become very popular and till 1 June 1989 loans amounting to Rs 66 crore had been disbursed; (e) scheme for self-employment for ex-servicemen (SEMFEX-II)–this scheme was launched on 15 January 1988 in collaboration with National Bank for Agriculture and Rural Development (NABARD). Under this scheme loans up to Rs 5 lakh for non-farm sector and without any upper ceiling for farm sector projects are sanctioned; (f) coal transportation–the scheme to raise ex-servicemen coal transport companies for transportation of coal in coal subsidy organisations was formulated in 1979. Provision has been made for single driver owner vehicles to join the companies. A total of 35 companies are presently operating in this field, seven more are being raised, and (g) transportation of bulk LPG–106 ex-servicemen have been sponsored to carry bulk LPG by tankers. Besides various other steps are being taken to ameliorate the lot of ex-servicemen. Gas agencies, petrol pumps and kerosene oil agencies, Mother Dairy and Delhi Milk Scheme milk booths, vegetable and fruit booths, UTI agencies, fertiliser agencies and shops are being allotted to them. In addition, each state has certain schemes for allotment of *Jai Jawan* stalls and agencies.

WELFARE

Ex-servicemen are authorised free medical facility in military hospitals and canteen facilities at the nearest CSD canteens. Two hundred and twenty five Sainik Rest Houses are established all over the country to enable ex-servicemen to stay at different places for short duration.

Children of defence personnel killed or disabled in action are entitled to free educational facilities like fees, hostel charges, cost of uniform, etc. Seventy five per cent concession in rail fare for travel in second class is given to all war widows. The recipients of gallantry awards are given 50 per cent concession for air and rail travel in second class. Twenty six war memorial hostels have been constructed in various Regimental Centres for providing accommodation to wards of war widows, war disabled and attributable peace time casualties. A stipend of Rs 200 per month is paid to each eligible ward. Financial assistance for construction of houses and marriage of daughters is given to war widows, war disabled and attributable peace time casualties by state governments and Kendriya Sainik Board.

Ex-servicemen and their widows, who are in penury, are given financial assistance by Kendriya Sainik Board, Defence Minister's Appellate Commission and Rajya Sainik Boards through their welfare funds. Grants are also given for special medical treatment. Kendriya Sainik Board also gives grants to paraplegic homes, cheshire homes and other charitable institutions to cater for expenditure incurred on ex-servicemen inmates.

Consequent to implementation of the recommendation of the Fourth Pay Commission, substantial improvements have been made in pension to war widows, disabled ex-servicemen and widows of attributable peace time casualties. Minimum pension including family pension has been raised to Rs 375 plus dearness allowance.

CANTONMENT BOARDS

Cantonments were established under the Cantonments Act, 1924 to safeguard the health, welfare and security of the armed forces personnel. The Act also provides for municipal administration for the civilian population in the cantonment areas. A board is constituted in each cantonment comprising elected, nominated and ex-officio members who function under the administrative and financial control of the GOC-in-C of Command. The term of the elected members of the cantonment boards is five years. There are 62 cantonments in the country.

Cantonments are classified as Class I, II and III depending on civil population in each case. Of the 62 cantonments, 30 are Class I, 19 Class II and 13 Class III. With the prior approval of the Government, cantonment boards are empowered to impose such taxes within their areas as are being levied by the neighbouring municipalities. However, if the boards fail to realise enough revenue to balance their budgets, they are to be assisted by grants-in-aid by the Government. In addition, the Government has started paying service charge for maintenance of government buildings from 1984-85. It is also being ensured that most of this amount is spent on development.

Under the Act, the Government is empowered to review any decision of the cantonment board or of the GOC-in-C in matters pertaining to the administration of the cantonment. Government can also issue directions to the board to improve its financial position by imposing new taxes and increasing the existing ones.

5 Education

EDUCATION is an integral part of country's development process and thus has been accorded a high priority. Concerted efforts during the last 43 years have seen a four fold increase in the total number of literates. The number of schools has also more than doubled with more than four time rise in the number of pupils. Universities also went up by more than five times. With quantitative expansion of educational facilities, there is now a greater emphasis on qualitative improvement. Before 1976, education was exclusively the responsibility of states, the Central government was only concerned with certain areas like coordination and determination of standards in technical and higher education, etc. In 1976, through a Constitutional amendment, education became the joint responsibility.

Seventh Plan envisaged promotion of quality and excellence in educational activities to meet the challenges of emerging areas of science and technology, provide wider opportunities for vocational education at different levels and reconstruct it to encompass country's human resources potential.

The overall aim is to eradicate illiteracy and spread universal elementary education in the age group of 15-35 by 1995. For this meticulously formulated strategies based on micro-planning are being applied at grass root levels. A major strategy to overcome various obstacles in achieving this goal, focuses on detailed block and school level planning with community participation and effective linkages with local environment and development activities. A programme named 'Operation Blackboard' is already in operation to provide basic amenities in education in primary schools and a second teacher in single teacher schools. In particular, efforts were initiated during Seventh Plan to raise standards of science and mathematics teaching at all levels. Non-formal education (NFE) programme which caters to the need of drop-outs, working children and out-of-school children, has been expanded. Open learning systems are being encouraged at all levels. Education of scheduled castes and tribes and people of hill areas is being specially promoted besides women's education, which is an area of special importance. Necessary reforms will be initiated to make vocational education more attractive. Degrees will not be insisted upon as an essential qualification or pre-condition for jobs where it has not specific relevance.

EDUCATIONAL MANAGEMENT/PLANNING

In addition to policy formulation, Department of Education shares with states the responsibility for educational planning. Till the Sixth Plan, education was taken to be a social service rather than an input in the development process. The emphasis has since changed whereby education is considered pivotal in social and economic development of the country through development of human resources. National Policy on Education was approved by Parliament in May 1986.

It envisages universalisation of primary education by 1990 and provision of free and compulsory education to all children up to 14 years of age by 1995. This policy aims at priority to qualitative importance of education specially technical and higher education, vocationalisation of secondary education, development of regional languages, strengthening of monitoring and evaluation machinery for effective implementation of plan programmes, etc. Emphasis has also been laid especially on dynamic and beneficial linkages between education, health, social welfare and employment programmes. The new Government headed by V.P. Singh has decided to review the 1986 Policy.

EXPENDITURE

In Seventh Plan, an outlay of Rs 6,382.65 crore was approved for education including culture and sports for the Centre and states. Of this outlay for general education and technical education was Rs 5,457.09 crore. Against this, likely expenditure for these sectors during Seventh Plan period works out to Rs 7,770.95 crore. Against the outlay for education in border areas (Rs 200.00 crore), the anticipated expenditure during the Plan comes to Rs 150.50 crore. According to latest available budget estimates for the year 1987-88, plan and non-plan budget (Revenue Account) of Central and state education departments was Rs 9,810.28 crore forming 9.3 per cent of the total General budget excluding Railways. Detailed achievements and targets on education have been give in table 5.1.

LITERACY

According to 1981 census, national average literacy rate (16.67 per cent in 1951) increased to 36.23 per cent. Eighteen states and union territories are above this average. In 1971 census, the highest literacy rate of 61.56 per cent was in Chandigarh and the lowest 11.29 in Arunachal Pradesh. In 1981, Kerala which hitherto had been number two reached the top with a literacy rate of 70.42 per cent, while Arunachal Pradesh continues to be at the bottom with 20.79. Total number of literates which increased from 601.9 lakh in 1951 to 2,475.5 lakh in 1981 (including the estimated literate population of Assam) registered a four fold increase in 30 years. Simultaneously, the total number of illiterates had increased from 3,009 lakh in 1951 to 4,376.3 lakh (including the estimated illiterate population of Assam) in 1981. Of these 3,695.2 lakh (84.44 per cent) live in rural areas. Literacy rates among men and women are 46.89 and 24.82 per cent respectively. Of 444 districts in the country, 243 had a literacy level below

TABLE 5.1 ACHIEVEMENTS AT DIFFERENT LEVELS OF EDUCATION

	1950-51	1960-61	1968-69	1978-79	1979-80	1982-83	1984-85	1986-87	1987-88
1. No. of pupils in Classes I-V (lakh)	191.5	349.9	543.7	689.6	715.58	795.07	856.6	899.9	929.4
2. Percentage thereof to total population in age group 6-11	42.6	62.4	78.1	81.6	82.7	86.8	93.6	95.96	97.86
3 No. of pupils in classes VI-VIII (lakh)	31.2	67.0	125.4	181.8	192.79	236.31	262.2	287.8	299.1
4. Percentage thereof to total population in age group 11-14	12.7	22.5	33.5	38.0	39.6	45.5	48.1	53.14	55.14
5. No of pupils in classes IX-XI/XII (lakh)	12.2	28.9	61.5	84.1	98.14	115.88	154.8	155.0	178.5[4]
6. Percentage thereof to total population in age group 14-17	5.3	10.6	18.3	18.8	21.9	18.6	23.5	NA	NA
7. No. of pupils at the university stage arts, science and commerce (lakh)	3.6	8.9	17.0	38.2	31.38	49.34	30.3	32.1	30.9
8. Percentage thereof to total population in age group 17-23	0.8	1.8	3.3	4.9	3.7	6.1	3.53	NA	NA
9 Percentage of students reading science at university stage	37.8	28.9	23.0	18.0	23.03	23.35	26.6	21.1	23.5
10. No. of primary/junior basic schools	2,09,671	3,30,399	4,00,621	4,72,519	4,82,476	5,11,106	5,21,048	5,37,399	5,43,677
11 No of middle/senior basic schools	13,590	49,663	84,246	1.12,801	1.15,117	1,25,446	1,31,249	1,37,196	1,41,014
12. No. of high/higher secondary schools	7,288	17,257	33,487	46,874	48,905	52,716	62,186	64,240	71,305[4]
13. No of teachers training schools	782	1,138	231	118	138	111	223	973	990
14. No. of teachers training colleges	53	478	1,377	1,286	1,283	1,310	367	462	485
15. No. of arts, science (including research) and commerce colleges	542	1,122	2,141	6,343	6,514	7,350	4,067	8,856	4,378
16. No. of universities	27	45	92	125	128	141	147[2]	157[2]	176[2]
17. No. of teachers in primary schools	5,37,918	7,41,515	10,05,282	12,96,639	13,28,700	14,23,639	14,85,305	15,22,108	16,16,685
18. Percentage of trained teachers in primary schools	58.8	64.1	76.9	87.1	86.8	86.9	85.8	87.26	88.41
19. No. of teachers in middle schools	85,496	3,45,228	5,95,733	8,25,126	8,35,608	8,82,506	9,27,623	9,79,073	10,14,162

	1950-51	1960-61	1968-69	1978-79	1979-80	1982-83	1984-85	1986-87	1987-88
20. Percentage of trained teachers in middle schools	53.3	66.5	81 0	87.4	88.7	89.7	89.5	89.64	90.10
21. No. of teachers in high/higher secondary schools	1,26,504	2,96,305	5,81,618	8,18,507	8,69,842	9,93,093	10,86,589	11,99,367	12,42,823
22. No. of teachers in university, art and science colleges.	18,648	41,759	91,069	2,49,399	2,59,745	3,07,242	2,02,958	NA	NA

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1. Figures are provisional and include below degree level institutions also.
2. Includes deemed-to-be university and institutions of national importance
3. NA stands for not available.
4. Includes data of Intermediate/Pre-degree/Junior Colleges/10+2 Hr. Secondary and High/Hr Secondary

the national average, (including 193 districts where the female literacy rate was below 20 per cent).

1990 has been proclaimed as the International Literacy Year to promote literacy. Prime Minister V.P. Singh launched the Year in India on 22 January 1990. ILY objectives coincide with National Policy on Education (1986), Programme of Action elaborated to operationalise the Policy and National Literacy Mission Authority (NLMA) set up for strategic action to promote literacy. A detailed calender of activities has been drawn up at national level to observe and commemorate this year. Guidelines have been issued to state governments to set up state, district and block level committees to plan, monitor and implement ILY programmes. Centre has also prepared a project, Radio learning. Package, to import literacy through AIR stations.

ELEMENTARY EDUCATION

Programme of universalisation of elementary education has been accorded the highest priority to fulfil the Constitutional directive of providing universal, free and compulsory education to all children up to the age of 14. National Policy on Education resolved that all children who attain the age of 11 years by 1990 will have had five years of schooling or its equivalent through non-formal stream. Likewise, by 1995, all children will be provided free and compulsory education up to 14 years.

Various Centrally-sponsored schemes in the elementary education sector have been initiated to supplement the efforts of states for achieving this target. Operation Blackboard was started to provide every primary school in the country with an acceptable level of physical facilities, and NFE programme to give education comparable to that of schools on a part-time basis to children who can not join the formal system, working children, school drop-outs, etc. Table 5.2 shows enrolment achievements and targets.

TABLE 5.2 ENROLMENT ACHIEVEMENTS AND TARGETS

(figures in lakh)

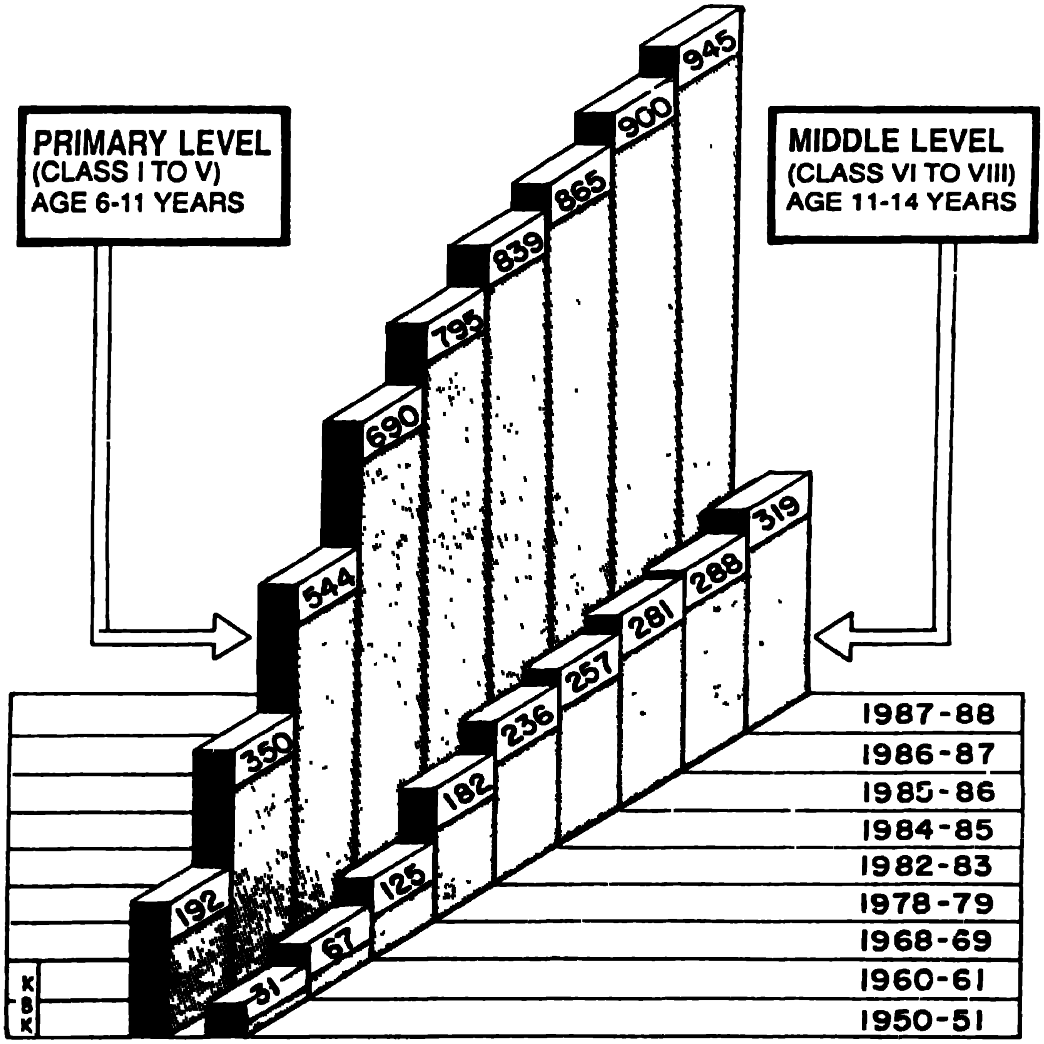
	Achievements		
	1985-86	1986-87	1987-88
Age group 6-11 Enrolment (Classes I-V)	891 26	900 00	929 44
Enrolment as per cent of age group population	(95 36)	(96 0)	(97 9)
Age group 11-14 Enrolment (Classes VI-VIII)	289 97	288	299 14
Enrolment as per cent of age group population	(55 63)	(55 14)	(55 1)
Age group 6-14 Enrolment (Classes I-VIII)	1,181,23	1,243 99	1,228 58
Enrolment as per cent of age group population	(81 14)	(85 08)	(82.33)

Presently, education in classes I-VIII in all government/local bodies and aided schools in most of the states/union territories in the country is free.

NAVODAYA VIDYALAYAS

Children with special talent or aptitude, it is universally recognised, need opportunities to proceed at a faster pace. The National Policy on Education

ELEMENTARY EDUCATION IN INDIA
PROGRESS OF ENROLMENT
LAKH PERSON



envisaged that pace setting schools intended to serve this purpose should be set up in various parts of the country on a given pattern with full scope for innovation and experimentation. Accordingly, a scheme was formulated to set up co-educational residential schools, called *Navodaya Vidayalayas*, on an average one in each district during Seventh Plan.

Main objectives of Navodaya Vidyalayas are: (a) to provide good quality modern education with latest technical facilities for alround development of talented children without any regard to their family's socio-economic conditions, (b) to ensure reasonable competence in three languages as envisaged in the three-language formula and (c) to serve as focal points for improvement in quality of school education in general through sharing of experiences and facilities.

Navodaya Vidyalayas are run by *Navodaya Vidyalaya Samiti*, an autonomous society, under Department of Education in Ministry of Human Resource Development. The Samiti was registered as a society on 28 February 1986 and is affiliated to the Central Board of Secondary Education.

During Seventh Plan, of the slated 449 Navodaya Vidyalayas 261 had been set up in 29 states/union territories. Total number of children admitted during the academic session 1989-90 was 49,000 including 13,054 girls. Overall percentage of SC/ST students admitted so far was 18.70 and 11.22 per cent respectively. Girls accounted for 26.67 per cent.

SECONDARY EDUCATION

Education is free up to lower secondary (Class X) stage in 15 states and six union territories, namely, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Nagaland, Sikkim, Tamil Nadu, Tripura, West Bengal, Chandigarh, Andaman and Nicobar Islands, Dadra and Nagar Haveli, Daman and Diu, Lakshadweep and Pondicherry. It is free for girls only in Manipur, Orissa, Rajasthan and Uttar Pradesh, while children belonging to SC/ST get free education in all states and union territories.

Education up to higher secondary stage (Class XI-XII) is free in Gujarat, Jammu and Kashmir, Chandigarh, Tripura, West Bengal, Sikkim, Arunachal Pradesh, Andaman and Nicobar Islands, Dadra and Nagar Haveli and Pondicherry.

10+2+3 PATTERN

Adoption of 10+2+3 pattern was first recommended by Calcutta University Commission (1917-19). The proposal was also endorsed by Central Advisory Board of Education. It was made part of the National Policy on Education of 1986. Besides a uniform structure, the pattern provides for changing the content of education to suit national needs. The system makes vocationalisation of higher secondary stage easier and more effective. It also helps in raising standards both at school and university stages. All states/union territories have switched over to 10+2 pattern of education.

VOCATIONALISATION OF SECONDARY EDUCATION

Various committees and commissions on educational reforms have stressed the need for diversifying secondary education by introducing knowledge and skills that may prepare students for remunerative work without necessarily having to go for higher education. The Seventh Plan document has also identified vocational training programmes at different levels of education as one of the major thrust areas.

A Centrally-sponsored scheme of Vocationalisation of Secondary Education was started from February 1988. Under this scheme, financial assistance has been provided to state governments/UT administrations for introduction of vocational courses in schools at the plus 2 stage. It has many components including conduct of area vocational surveys so that vocational courses to be introduced in selected institutions are needbased, preparing curricula and course material, organising training of teachers, providing apprenticeship training and modification of recruitment rules so that some of the students from vocational stream can find employment in organised sector. Emphasis is laid on area vocational surveys and establishment of a Joint Council for Vocational Education at national, state and district levels, besides stressing the need for creating a management structure at various levels for effective implementation and monitoring of the programme. The scheme also seeks to promote experimentation and innovation in vocational education through non-governmental organisations.

Efforts are also on to provide employment to such trained students in public and private sectors and plan strategies for their self-employment. There are over 1,700 schools in the country offering about 8,000 courses relevant to local employment opportunities.

IMPROVEMENT OF SCIENCE EDUCATION IN SCHOOLS

A Centrally-sponsored scheme of Improvement of Science Education in Schools was started in the beginning of 1988 to improve quality of science education and promote scientific temper. Under this scheme, financial assistance is given to states/union territories to provide science kits to upper primary schools; upgrade and strengthen science laboratories in secondary and higher secondary schools; upgrade libraries in secondary and higher secondary schools; set up district resource centres for science education, development of instructional materials and training of science and mathematics teachers. It also gives assistance to voluntary organisations in the field of science education for undertaking innovative projects and resource support activities. By the end of Eighth Plan, all government and government-aided upper primary, secondary and higher secondary schools are expected to be covered by this scheme in a phased manner. This scheme has already become popular with various voluntary organisations.

ENVIRONMENTAL ORIENTATION TO SCHOOL EDUCATION

A Centrally-sponsored scheme of Environmental Orientation to School

Education was started from 1988-89 with a view to bringing a synthesis between educational programmes and local environmental situation. Under this scheme, cent per cent financial assistance is given to states/union territories and voluntary organisations in the field of environment education. Project activities include review of curricular and extra curricular material, preparation of general informative books/brochures/posters/ audio-visual material, adoption of monuments by schools for study and upkeep and study of ecological problems in the neighbourhood. One of the preferred activities is setting up of school nurseries. Voluntary organisations are also involved in innovative projects on environment education.

NATIONAL OPEN SCHOOL

Central Board of Secondary Education, New Delhi set up an Open School in 1979 to complement the formal system. It was to provide an alternative or second chance for education and opportunity to school drop-outs, housewives, unemployed or working adults and in general to those who wished to avail of continuing education. From a small enrolment of 1,672 in 1981-82, number of students increased to 51,000 in 1989. The cumulative active enrolment is about 1,50,000. Every state and union territory has now open school students. About 37 per cent of them are women and 20 per cent SC/ST, while 75 per cent being above 17 years of age.

Open learning already available at tertiary level in India has even greater urgency at school level. To meet the increasing demand, courses leading to secondary school certification were introduced by Open School in September 1988. Some 23,691 candidates have been certified as qualifying in Secondary School Examination so far. The first Senior Secondary School Examination took place in January 1990. To supplement distant learning, Open School ran 101 study centres all over the country providing candidates face-to-face teaching.

Open School education is a vital link with National Literacy Mission and Non-formal and Adult Education programmes facilitating a channel for continuing education besides selected vocational courses. National Open School has been registered as a society on 23 November 1989.

INTEGRATED EDUCATION FOR DISABLED CHILDREN

It has been established scientifically that disabled children with mild handicaps make better progress academically and psychologically if they study with normal children. To integrate these children with others in common schools, a new scheme of Integrated Education for Disabled Children was started during 1987-88. Under it, cent per cent financial assistance is given to state governments/UT administrations/voluntary organisations for necessary facilities in schools. Admissible items of expenditure are books and stationery allowance, transport allowance, uniform allowance, readers allowance (for blind children), escort allowance (for orthopaedically handicapped with lower extremities disabilities), equipment allowance and wherever necessary hostel charges. Besides the scheme also provides among other things to meet cost of salary and incentives for teachers, setting up of resource rooms, carrying out assessment of disabled children, training of teachers, removal of architectural barriers in schools, development and production of special instructional material for them. Assistance is also given, through UGC, to selected universities/institutions to run training courses in special education for teachers of handicapped children. Training facilities are also provided by NCERT and four Regional Colleges of Education.

The scheme is at present in operation in Andhra Pradesh, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karanataka, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Delhi and Andaman and Nicobar Islands.

At present, about 20,000 disabled children are being covered under this scheme.

EDUCATIONAL CONCESSIONS TO CHILDREN OF ARMED FORCES PERSONNEL KILLED OR DISABLED DURING HOSTILITIES

The Centre and most of state governments and union territories offer educational concessions to children of defence personnel and para-military forces killed or permanently disabled during Indo-China hostilities in 1962 and Indo-Pakistan operations in 1965 and 1971.

During 1988, these concessions were extended to children of IPKF/CRPF personnel who were killed/disabled during action in Sri Lanka and to children of armed forces personnel killed/disabled in action in 'Operation Meghdoot' in Siachen area.

PROMOTION OF CULTURE/ART/VALUES AND INNOVATIVE PROGRAMMES

ASSISTANCE TO AGENCIES/EDUCATIONAL INSTITUTIONS

A Central scheme for assistance to agencies for promoting culture/art/values in education and assistance to educational institutions implementing innovative programmes has been in operation since 1987. To help implement the scheme effectively, prominence has been given to people's involvement including association of non-governmental agencies and voluntary efforts.

The specific objectives of the scheme are: (a) to strengthen cultural input in educational content and process; (b) to strengthen education in school system, and (c) to implement pioneering or innovative programmes at school stage.

Assistance under the scheme is also given for: (i) development of learning material, instructional/learning aids; (ii) meetings, conferences, seminars to promote innovation and experiments; (iii) teacher training; (iv) innovative and experimental projects of national importance; (v) activities/programmes interlinking education with culture/art/value education activities, and (vi) development of infrastructure in schools assisted for innovative programmes.

NATIONAL POPULATION EDUCATIONAL PROJECT SCHOOL AND NON-FORMAL EDUCATION

Realising the potential of education in tackling the problems of a growing population, National Population Education Project (NPEP) was launched from April 1980 to introduce population education in formal education system. The underlying objective is to create in younger generation adequate awareness of population problems and their responsibilities towards the nation. The programme has been developed in collaboration with United Nations Population Fund (UNFPA) and Ministry of Health and Family Welfare, being the nodal authority for the project. NCERT provides technical assistance. Expenditure incurred by implementing agencies in states/UTs and NCERT on this project is reimbursed by UNFPA.

NPEP has succeeded in institutionalising population education into on-going education system. The specific mention of the 'small family norms' and other core curricular areas having a bearing on major concerns of population education, has strengthened the validity of purposes and objective of the project. Elements of population education are being effectively integrated into syllabi and textbooks of various states and union territories. For achieving this goal, conceptual framework of population education has been revised and minimum essential contents identified. A compendium of Lessons on Population Education for selected subjects being taught in different classes from I to XII, has been developed. A number of prototype curricular and instructional material including textual and audio-visual material and also evaluation tools, have been developed at national level and circulated to states/UTs. In states/UTs over 10 lakh teachers, teacher educators, key persons, educational administrators and other functionaries have been trained during the last eight years. Concerted efforts are to give a major thrust towards non-formal sector by developing adequate instructional material for non-formal education centres.

EDUCATIONAL TECHNOLOGY PROGRAMME

Educational Technology Programme started as a Central sector scheme in 1972 for wider access to qualitative improvement in education. After 1987-88, it has now became a Centrally-sponsored scheme. The Centre bears cent per cent expenditure on most of its components. The scheme was further revised with a view to ensuring modern educational technology reach to the most distant areas and most deprived sections of society simultaneously with areas of comparative affluence and easy accessibility.

This approach favours: (a) using broadcast methods by consolidating efforts under INSAT utilisation programme; (b) achieving larger programme production capabilities within education sector, and (c) extending radio and TV coverage to five lakh and one lakh elementary schools respectively by providing receiving sets.

Programme production has already commenced in CIET and SIETs. From 1988, responsibility for programme production hitherto shared on 50:50 basis by CIET and Doordarshan, has been shifted to CIET and SIETs.

ETV programmes are telecast daily for three hours 45 minutes in morning on about 220 school days covering five regional languages *viz.*, Hindi, Gujarati, Marathi, Oriya and Telugu on a time sharing basis (45 minutes each language). Programmes are produced and telecast for children (6-8 and 9-11 age groups) from Monday to Friday. Programmes for primary level teachers are telecast every Saturday. ETV programmes are relayed by all HPTs and LPTs in six INSAT states and other Hindi speaking states.

UNIVERSITY AND HIGHER EDUCATION

Higher education is imparted through 142 universities in the country. Of these, there are 10 Central universities and the remaining functioning under state legislatures. Total number of colleges in the country is 6,507. Besides there are 28 institutions in several specialised fields declared as deemed-to-be universities under the University Grants Commission Act, 1956. Present enrolment of students is 39.48 lakh.

Government proposes to set up an apex body at national level, National Council for Higher Education, for streamlining higher education in agriculture, medical, technical, legal and other fields. It also proposes to set up an autonomous body, Central Council of Rural Institute for opening rural institutes/universities.

UNIVERSITY GRANTS COMMISSION

Coordination and determination of standards in higher education is a subject in the Union List and hence a special responsibility of the Central government. This responsibility is discharged mainly through University Grants Commission which was established in 1956 under an Act of Parliament to take measures for promotion and coordination of university education and determination and maintenance of standards in teaching, examination and research in universities. To fulfil its objectives, the Commission can enquire among other things into financial needs of universities; allocate and disburse grants to them; establish and maintain common services and facilities; recommend measures for improvement of university education and give advice on allocation of grants, and establishment of new universities. UGC proposes to introduce a degree course in physical education, health education and sports. It has also approved 102 colleges for autonomous status-19 in Andhra Pradesh, 14 in Tamil Nadu, 27 in Madhya Pradesh five each in Rajasthan and Orissa and one each in Gujarat and Uttar Pradesh.

NATIONAL PROFESSORSHIP

The Government had in 1949 instituted a scheme of National Professorship to honour distinguished academicians and scholars in recognition of their valuable contribution to knowledge. Persons of real eminence who have attained the age of 65 years and have made outstanding contributions in their respective fields and are still capable of further productive research, are considered for appointment as National Professors. It carries a monthly salary of Rs 5,000. Appointment made initially for a period of five years is extendable by another five years. Selection for appointment of a National Professor is made by a Committee consisting of Prime Minister, Minister for Human Resource Development, Home Minister and Finance Minister. Maximum number of existing National Professors at any time should not exceed 12. There are at present five National Professors-Justice D.D. Basu (Law), Dr. V.K.R.V. Rao (Economics), Dr. C.R.Rao (Mathematics), Dr. A.Appadorai (Political Science) and Smt. M. Subbulakshmi (Carnatic Music).

SPECIAL RESEARCH ORGANISATIONS .

Indian Council of Historical Research, New Delhi, set up in 1972, enunciates and implements a national policy on historical research and encourages scientific writing of history. It operates research projects, provides financial support for research projects by individual scholars, awards fellowships and undertakes publication and translation work.

Indian Council of Philosophical Research with offices in New Delhi and Lucknow, reviews the progress of research in philosophy from time to time, sponsors or assists projects or programmes of research in philosophy, gives financial assistance to institutions and individuals to conduct research, etc.

Indian Institute of Advanced Study, Shimla, set up in 1965, is a residential centre for advanced research in humanities, social sciences and natural sciences. It is a community of scholars engaged in exploring new frontiers of knowledge aimed at making major conceptual developments and offering inter-disciplinary perspectives on questions of contemporary relevance.

Indian Council of Social Science Research, New Delhi is an autonomous body for promoting and coordinating social science research. Its main functions are to review the progress of social science research, give advice to its users in government or outside, sponsor research programmes and give grants to institutions and individuals for research in social science.

TECHNICAL EDUCATION

Trained manpower at middle level is needed for a wide range of professional duties. For this diploma courses are offered in about 400 approved polytechnics, with an annual enrolment capacity of about 70,000 students. They offer a variety of courses in engineering and technology. In addition, there are other institutions which conduct courses at diploma level in pharmacy, hotel management, etc. There are 62 more approved ploytechnics meant exclusively for girls with an annual intake of about 5,900. Polytechnics not yet approved by All India Council for Technical Education/Government of India have been excluded from these figures.

Polytechnics are widely spread in states and union territories. They are affiliated to the respective state board of technical education, which lays down levels and standards of the courses and is responsible for evaluation of polytechnics and students. Courses are normally of three years duration, where full-time institutional instruction is offered and $3^1/_2$ to 4 years where instruction is on a sandwich pattern or part-time basis. Vocational training/craftsmen courses are offered at industrial training institutes. For professional engineers and technologists, 200 approved engineering colleges offer courses leading to bachelor's degree of the respective university. Total admission capacity annually for these courses is about 36,000. Number of institutions offering Post-graduate courses is about 115 with annual capacity of about 7,500. Facilities also exist at most of the centres for part-time courses at Post-graduate level for those who are already in service. Duration of a full-time Post-graduate course in engineering and technology is three semesters.

Five national institutions at Bombay, Kanpur, Kharagpur, Madras and New Delhi, known as Indian Institutes of Technology, provide facilities for Under-graduate and Post-graduate courses and research in engineering and technology. These institutions admit about 1,600 students annually to Under-graduate courses. Besides, these institutions and Indian Institute of Science, Bangalore, admit nearly 2,000 students every year to the Post-graduate courses and 1,500 research scholars. There are 17 regional engineering colleges providing facilities for education in various branches of engineering and technology. There is a number of other centers for specialised courses such as mining and metallurgy, industrial engineering, forge and foundry and architecture. To integrate engineering education with practical training, a number of engineering colleges and polytechnics are now offering sandwich courses in collaboration with industry. Duration of such courses for degree in engineering is $4^1/_2-5$ years. Four technical teachers training institutions at Calcutta, Bhopal, Chandigarh and Madras train teachers needed for polytechnics.

Four national level institutes known as Indian Institutes of Management at Ahmadabad, Calcutta, Bangalore and Lucknow provide assistance to private and public sector enterprises in meeting their needs for managerial manpower through Post-graduate programmes. At present, their annual admission capacity is about 500. They also provide assistance in solving management problems and contribute to the development of indigenous literature on the science of management through programmes of research, consultancy and publication and also conduct fellowship programmes equivalent to Ph. D. In addition, about 55 institutions in university sector offer full-time, part-time, as well as correspondence courses in general and in functional areas of management. In all there are 110 schools producing nearly

7,500 MBAs-the management base being second to USA. Community polytechnics at selected diploma level institutions under a different scheme promote community/rural development on scientific lines through transfer of technology to rural areas. For this 118 polytechnics have been selected. The scheme aims at establishment of extension centers in far flung rural areas to offer skilled training to rural people right at their door step, in addition to formal training in polytechnics. The main objective is to provide gainful employment and self employment.

TECHNICAL AND MANAGEMENT EDUCATION

National Policy on Education stresses the reorganisation of technical and management education system to meet the future needs. Its main planks are induction of improved technologies and supply of technical and managerial manpower to infrastructure and services sectors as well as unorganised and rural sectors. Besides, its other highlights are promotion of continuing education and distance learning, computerisation, entrepreneurship as a career, strengthening of community polytechnics to improve quality and coverage, innovation, research and development, and emphasis on efficiency and effectiveness at all levels. All India Council for Technical Education (AICTE) is vested with statutory authority for planning, formulation and maintenance of norms and standards.

TEACHER EDUCATION

New Education Policy attaches high importance to both pre-service and in-service components of teacher education for improvement in quality and coverage of education.

A programme of mass orientation of school teachers is already in operation since 1986. Under it, 10-day camps are organised, mostly during vacations, with a view to orienting teachers in improving their professional competence. About 13.5 lakh teachers were covered under this programme during first three years of its implementation. Another five lakh were to be covered during 1989-90.

Under the new policy, a Centrally-sponsored programme of setting up district institutes of education and training (DIET) and of strengthening secondary teacher education institutions (STEI) is also being implemented since 1987-88. These institutions impart pre-service and in-service training to elementary school teachers and personnel of adult and non-formal education. Besides, they provide extension and other academic support to elementary schools and adult and non-formal education systems at district level and engage in locally-relevant experimentation and innovation. Likewise, selected STEIs are also being developed to impart pre-service and in-service training to secondary school teachers, and provide necessary academic guidance and support to the secondary schools of a group of two or three districts.

Central assistance is being given to states and union territories for setting up DIETs and strengthening STEIs, for construction of buildings, books and equipment, appointment of suitably qualified staff, conducting in-service training programmes, etc. During 1987-88, Central assistance was given, on project basis, for setting up 216 DIETs and strengthening 32 STEIs. States are now in the process of implementing these projects.

ADULT EDUCATION

Under directives of National Education Policy and implementation strategies of the Programme of Action, Government has formulated a comprehensive programme known as National Literacy Mission (NLM) in the field of adult education. It is one of the Seven National Technology Missions and aims at imparting functional literacy to eight crore illiterates in the 15-35 age group (three crore by 1990 and an additional five crore by 1995).

There are 513 projects under Central Scheme of Rural Functional Literacy Projects (RFLP), besides 852 projects under state adult education programmes (SAEPs). Whereas 454 projects under RFLP have 300 adult education centres each, the remaining 49 have 100 to 200 centres. Similarly under SAEPs also, projects have 100 to 300 adult education centres. Voluntary agencies are playing important role in creating environment conducive to literacy and actually imparting literacy. At present, about 628 voluntary agencies are implementing this programme by running over 45,433 adult education centres and 2,355 *jana shiksha nilayams* (JSNs). The overall number of JSNs has increased to over 30,000. Under Mass Programme of Functional Literacy, about 6.5 lakh students in universities, colleges and schools are participating in the Mission. Each student is expected to make at least one adult literate.

Kerala has taken the lead in the promotion of adult education programme. Two of its districts Kottayam and Ernakulam have achieved cent per cent literacy.

NLM is attracting support from people of all walks of life. Programmes for complete eradication of illiteracy have been taken up in Kerala. Gujarat, Karnataka, Goa, West Bengal and Pondicherry, in selected districts, blocks and villages by voluntary involvement of students, teachers and voluntary agencies. Emphasis is now on making persons actually literate rather than on enrolment. Thirty six *shramik Vidyapeeths* are also functioning in different states to cater to workers education. With a view to enlarging coverage of adult learners with reduced cost, a new technique, Improved Pace and Content of Learning (IPCL), is being introduced providing integrated learning material with in-built mechanism for evaluation at various levels. IPCL technique also aims at retaining the interest of adult learners. Eighteen state resource centres are providing academic and technical resource support to the programme by way of arranging training of functionaries, bringing out teaching-learning material, catering to varying needs of learners both in basic literacy and post-literacy stages and undertaking research and experimentation work relating to adult education programme. Seventeen voluntary agencies/institutes of social science and research have been identified for evaluating the programme.

Forty two technology demonstration districts have been identified. Techno-pedagogic and research and development inputs like solar power packs, improved blackboards, slates, pencils,etc., are being provided to improve quality of the programme. A computerised management information system is also being developed in these districts to ensure reliable and steady flow of information needs for better management.

Over 23,000 *jana shiksha nilayams* (JSNs) have been sanctioned for providing facilities of post-literacy and continuing education so that neo-literates do not relapse into illiteracy.

WOMEN'S EDUCATION

National Policy on Education envisages that education would be used as a strategy for achieving a basic change in the status of women. In recognition of importance of education of girls and women in accelerating socio-economic development, Government has formulated a variety of measures from time to time in this direction. The national education system would: (i) play a positive interventionist role in empowerment of women; (ii) contribute towards development of new values through redesigned curricula and textbooks, and (iii) promote women's studies as part of various courses. Main features of targets and implementation strategy will be to: (i) gear entire education system to plan a positive interventionist role in empowerment of women; (ii) promote women's studies as a part of various courses and encouragement of educational institutions to take up active programmes to further women's development; (iii) widen access of women in programmes of vocational, technical and professional education, and (iv) create dynamic managerial structure to cope up with targets envisaged. Education up to class VIII is free for girls in the country and up to class X in most of states/UTs. At present, there are 824 women colleges and women share of enrolment stands at 32 per cent.

MAHILA SAMAKHYA

A Central scheme 'Mahila Samakhya' (Education for Women's Equality) is being launched in Uttar Pradesh, Gujarat and Karnataka. Essentially, the programme contemplates setting up of women's activity centres in villages. Adult education centres, non-formal education centres and jana shiksha nilayam and intensive training of all education workers in the villages will be coordinated in this programme through a single implementation structure. *The Mahila Sangha* will motivate women to participate in the education process. In addition, vocational training for rural women, residential condensed courses to upgrade their educational skills and vocational training in unconventional fields in selected high schools will also be taken up. Training as a regular activity at all levels will be initiated, so that old attitude towards women changes and they move from a state of passive acceptance of reality to self-determination. This programme initially taken up till March 1990, is likely to be extended to Eighth Plan period. Under this scheme women activities centres have been set up in 2,000 villages of 10 districts in three states—Gujarat, Karnataka and Uttar Pradesh.

EDUCATIONAL RESEARCH AND TRAINING

National Council of Educational Research and Training (NCERT) was established in 1961 in New Delhi. It acts as the principal agency for academic advice to the Ministry of Human Resource Development in matters pertaining to formulation and implementation of policies and programmes for qualitative improvement of school education. It works in close collaboration with education departments of states, universities and other institutions having an interest in school education. It also maintains close contact with international organisations.

NCERT undertakes research and innovations, development activities, training programmes, educational extension, publications and dissemination, education evaluation, talent search and exchange programmes. It runs National Institution of Education (NIE), New Delhi. NIE looks after renewal of content and process of school education. Central Institute of Educational Technology (CIET), New Delhi promotes use of educational technology, particularly mass media to improve and spread education and develop alternate system of education. Four regional colleges in Ajmer, Bhopal, Bhubaneshwar and Mysore impart training courses at Graduation and Post-graduation level in education. Methodologies developed in these colleges are tested in actual classroom situations.

There are 17 field advisers of NCERT in Ahmadabad, Allahabad, Bangalore, Bhopal, Bhubaneshwar, Calcutta, Chandigarh, Guwahati, Hyderabad, Jaipur, Madras, Patna, Shillong, Pune, Shimla, Srinagar and Trivandrum.

They maintain effective liaison with the state education authorities and state level institutions for providing academic and training inputs to school education system.

NCERT develops instructional material for childhood education and training packages for teacher educators and supervisory personnel. It develops picture books. audios, videos, etc., and conducts orientation programmes for key persons, besides holding toy making competitions. It also develops non-formal education curriculum, modular instructional material and training manuals for NFE functionaries. NCERT provides technical assistance for NPEP designed to introduce population education in formal education system. It undertakes design, development and prototype of science equipment for schools and conducts teacher training programmes on this equipment. NCERT provides its expertise to states/ union territories. It also designs courses and material, generates software systems and sets up resource centres for computer literacy and studies in schools (CLASS) project.

Orientation courses for key persons involved in vocational education from states and union territories are organised by NCERT. It prepares comprehensive guidelines for curriculum evaluation and school-industry linkages as well as for pre-service and in-service education of teachers on vocationalisation of education. Training courses for the officials involved in the integrated education programme for disabled children are also conducted.

The Council awards 750 scholarships yearly to students on the basis of national talent search examination conducted at the end of class X, for studies up to Ph.D. level in science, mathematics, social sciences or professional courses like engineering and medicine.

The policy research planning and programming under the educational research and innovations committee (ERIC) is concerned with indentification of priority areas in research to sanction funds for research projects by CIET, NIE, RECs and other institutions in states and individual scholars. ERIC also offers fellowships for doctoral work under the co-guidance of NCERT faculty and publication grants for doctoral thesis, research papers and monographs. NCERT thus undertakes, aids, promotes and coordinates research and innovations in education. Publications and documentation of NCERT comprise over 280 textbooks, instructional material and supplementary readers for classes I to XII. Other journals of NCERT are *Indian Educational Review, Journal of Indian Education, School Science Primary Teacher, Primary Shikshak and Bharatiya Adhunik Shiksha.* International Educational Resource and Documentation Centre collects and disseminates information and reading materials on comparative international aspects of education.

SCHOLARSHIPS

The Department administers a number of scholarship programmes including those offered by other countries providing facilities for higher and specialised education and training to Indian students. It also provides scholarships to nationals of other countries on a bilateral basis or otherwise. National scholarships scheme on merit-cum-means basis is being implemented through states and union territories since 1961-62. Number of scholarships given in 1988-89 was 33,000. Since 1987-88, this has been raised to 40,000. Annual income ceiling for eligibility has also been raised from Rs 6,000 to Rs 25,000 from April 1988. National loan scholarship scheme is in operation since 1963-64 implemented through states and union territories. Number of fresh scholarships is 20,000 per annum. Again annual income ceiling has been raised from Rs 6,000 to 25,000 from April 1988. A scheme of scholarships in approved residential secondary schools was started in 1953-54 and is being administered directly. Five hundred scholarships are awarded every year to students in the age group 11-12 whose parental annual income does not exceed Rs 25,000. The scheme of scholarships to students from non-Hindi states for post-matric studies in Hindi, started in 1955-56, is being implemented through non-Hindi speaking states and union territories. Since 1979-80, every year 2,500 scholarships are given under the scheme.

Another scheme for SC/ST students was started in 1987-88 with a view to upgrading their merit by providing them extra coaching, both remedial and special. It aims at removing their educational deficiencies in school subjects and facilitating their admission in professional courses, where entry is based on competitive examinations. SC/ST students who are selected under the scheme are placed in good residential schools so that they receive better quality education, develop confidence and are in a position to interact with others. The scheme operated through states and union territories had 225 students in 12 schools in four states to begin with, which increased to 1,000 in 1988-89.

Under general cultural scholarship scheme, started in 1949-50, Government awards a certain number of scholarships each year to nationals of selected African, Asian and other developing countries for Graduate, Post-graduate courses in engineering, technology, management, medicine, pharmacy and general courses against reserved seats in Indian institutions and universities.

Scholariships are tenable for the period necessary for the students to acquire the degree, diploma or certificate for which they are selected. The aim is to promote friendly relations between India and foreign countries and to provide all such facilities for higher education and training which are not available in their countries. Applications are invited through Indian missions from selected countries and only students recommended by their countries are considered. Under self-financing scheme the self-supporting foreign students are also considered for admission to B. Pharmacy course against reserved seats in Indian institutions.

One hundred and ten scholarships/fellowships (10 for Sanskrit and Pali) are awarded every year to nationals of Bangladesh. Scholarships are also offered to nationals of Sri Lanka (500), Mauritius (30), Maldives (16) and Angola (40). Value of scholarships is the same as in the case of general cultural scholarship scheme. These schemes are financed by Ministry of External Affairs and administered by Department of Education. Scholarships at the secondary stage for talented children from rural areas administered through states and union territories aim at developing potential talent from these areas and educating them in good neighbourhood district schools. These scholarships begin at the middle stage and cease at the end of secondary stage including plus-two stage of education. Number of scholarships which was 33,000 in 1985-86, increased to 38,000 in 1988-89. Scholarships under the scheme for study abroad since 1971-72, and administered directly, are available in all fields except medical and agricultural studies. Fifty scholarships are awarded each year. About 500 scholarships/fellowships are offered to foreign students annually under the cultural exchange programmes and Commonwealth scholarship/fellowship plan and other schemes. During 1988-89, about 284 scholars were awarded scholarships under these schemes. These scholarships awarded normally for a period of two years depending on the duration of the course, are mainly for Post-graduate studies/research.

The objective of providing scholarships for Indians to study abroad is to provide facilities for higher education in subjects for which good facilities are not available in India. These are offered under the provisions of cultural exchange programmes, bilateral agreements and Commonwealth scholarship/fellowship plan. Ad hoc scholarships are also offered by different countries from time to time, with unfixed subjects to be finally determined according to the national requirements. They are mostly for Ph.D and Post-Ph. D. specialisation, minimum eligibility requirement being a first class master's degree. During 1988-89, 59 candidates went to UK/Canada, 33 to Italy, 21 to USSR and 51 to other countries mainly for Ph.D. and Post-Doctoral research.

BOOKS

NATIONAL BOOK TRUST

National Book Trust (NBT) India, an autonomous organisation set up in 1957, fosters bookmindedness among people of different ages and walks of life.

NBT produces books in Hindi, English and 11 regional languages under well-defined series such as: *India—The Land and the People, Aadan Pradan, Nehru Bal Pustakalaya, National Biography, Popular Science, Young Indian Library, Folklore of India, World of Today* and *Ad hoc series.* A total number of 4,313 titles including originals, reprints and translations, have been published under these series so far. To meet the need of specialised books, NBT under a subsidy scheme offers attractive royalties to authors. Publishers too are given substantial subsidies for university level textbooks on technical subjects. Under it, 802 books on medical sciences, social sciences, engineering, agriculture, etc., have been subsidised.

Under another project for rural readers with limited reading facilities, NBT has been conducting surveys and organising workshops to explore local rural talent for producing reading material for neo-literates in the idiom familiar to them.

To meet requirements for children's books under Operation Blackboard NBT has launched an exploratory scheme to encourage private publishers and voluntary agencies under which it will bear the cost of preparation and processing of select manuscripts. It will also step up publication of its own titles. As a result of an open advertisement manuscripts in Hindi, Marathi, Bengali and Malayalam have been received

Besides publication, NBT organises book fairs and festivals at international, national and regional levels. It has so far organised nine world book fairs in New Delhi, 14 national book fairs and more than 120 regional book exhibitions and festivals. The Ninth New Delhi World Book Fair was held from 13 to 18 February 1990.

EXPORT OF BOOKS

Indian publishing has made rapid strides after independence and attained a stature of its own. Now, every country is to have a viable national authorship and publishing industry.

India is now a major book producer of English titles. To promote sale of Indian books and translation rights abroad and for securing printing jobs from abroad, steps are being taken to promote Indian books through participation in international book fairs, by conducting market studies and commercial publicity through circulation of annotated catalogues, brochures, etc. Export of books and publications was worth about Rs 27 crore in 1987-88.

IMPORT OF BOOKS

Under the new import policy (1988-91), import of educational, scientific and technical books/journals is allowed under open general licence (OGL). Teaching aids such as microfilms and microfiches with or without readers-cum-printers (G) film strips/slides with or without audio cassettes/ video tapes of educational nature can be imported under OGL by recognised educational, scientific, technical and research institutes, Centre and state government departments etc.

Dealers with a turnover of Rs 3 lakh or more are eligible to apply for import licence on the basis of 10 per cent of their purchase turnover for books other than those covered by OGL.

NATIONAL EDUCATIONAL RESOURCES CENTRE

The Raja Rammohan Roy National Educational Resources Centre (RRNERC) was established in 1972 as a part of the Book Promotion Division with a view to promoting writing and production of indigenous university level books. It aims at serving authors and publishers of university level books as well as research workers in book production by way of intensive and extensive reference work, documentation services and its various book promotional activities. Among them are: organising exhibitions of university level books in various universities by rotation; providing free publicity to indigenous university level publications, increasing awareness among teachers and students about standard university level books; on-the-spot evaluation of such indigenous books by panels of subject experts for possible recommendations to universities conducting sample surveys, and documentation and statistical analysis of imported books with a view to ascertaining trends of book imports in order to formulate meaningful import policy of reading material. RRNERC is the sole agency bringing out a first ever national catalogue of university level books. It acts as a data bank for university level textbooks and textbook research-cum information centre. It has a large number of indigenous university level books as well as subsidised editions of books published under Indo-British, Indo-Soviet and Indo-American textbook collaboration programmes. Besides, it brings out bibliographies, newsletters, etc., on various topics of interest to meet demands of authors, research scholars and publishers. RRNERC has been designated as the national agency for the operation of International Standard Book Numbering System (ISBN) in India. More than 765 publishers are registered with it, using ISBN on their publications. The system has been introduced to boost exports of indigenous books. The Centre has been reorganised and all its activities discontinued except the work relating to ISBN. It is now named as Raja Rammohan Roy National Unit with responsibility for the work pertaining to National Agency of ISBN only.

COPYRIGHT

Copyright protection is governed by the Indian Copyright Act, 1957. A copyright office has been set up to register works in which copyright exists so that owners of copyright in such works can have a *prima facie* evidence of their ownership under the Act. A copyright board with powers of adjudication in copyright disputes has also been set up.

India is a member of two international conventions on copyright, namely, Berne Convention (1948) and Universal Copyright Convention (1952). Both these conventions were revised at Paris in 1971, whereby special concessions were given to developing countries enabling them to issue compulsory licences for reproduction/translation of books of foreign origin for educational purposes. The Indian Copyright Act was amended in 1983 with the specific purposes of: (a) incorporating the provisions of the Paris Text of 1971 concerning grant of compulsory licence for translation and reproduction of foreign works required for educational purposes; (b) providing adequate protection to authors' right, and (c) removing administrative drawbacks and other lacunae experienced in administration of the Copyright Act, 1957. The amended Act came into force from 9 August 1984.

The Copyright Act was further amended in 1984 in order to check the problem of widespread piracy. The Copyright (Amendment) Act, 1984 has been enacted and necessary provisions made to combat piracy by making punishment for various offences more stringent. Infringement of copyright is now a congnizable offence. The amended Act provides for enhanced punishment—imprisonment from six months to three years and fine from Rs 50,000 to Rs 2 lakh. The amended Act came into force from 8 October 1984. Government proposes to set up a National Society of Authors to protect their copyright interests.

PROMOTION OF LANGUAGES

Government encourages development of all Indian languages including classical, modern and tribal. Its policy lays emphasis on training of teachers in relation to adoption of three-language formula and production of university level textbooks with a view to media switchover from English to regional languages. Support for promotion of facilities for teaching of Hindi in non-Hindi speaking states is provided and financial assistance given for the appointment of Hindi teachers in their schools, establishment of Hindi teacher training colleges, award of scholarships to students in these states for study of Hindi beyond the matriculation stage. Assistance is also given to voluntary organisations enabling them to hold Hindi teaching classes, conducting research on methodology of its teaching and providing Hindi books to various organisations. Various schemes are in operation to promote and develop tribal, classical and modern Indian languages and prepare/publish books, dictionaries, research and instructional material besides training of teachers.

HINDI

Through Kendriya Hindi Sansthan, Agra, Government promotes development of improved methodology for teaching Hindi to non-Hindi speaking students and preparation of suitable teaching material Central Hindi Directorate runs programmes relating to purchase/publication of Hindi books and their free distribution in non-Hindi speaking states and to Indian missions; Hindi teaching correspondence courses through the medium of English, Tamil, Malayalam and Bengali for foreigners and non-Hindi speaking students; preparation/publication of terminology/ bilingual/trilingual dictionaries, etc.

Commission for Scientific and Technical Terminology, New Delhi prepares and publishes definitional dictionaries/terminology, in various disciplines/Pan-Indian terminology, Hindi-English glossaries in basic sciences, humanities, social sciences and applied sciences, univeristy level books in agriculture, engineering including polytechnic, veterinary sciences, forestry, medical sciences including nursing, para-medical and pharmaceutical sciences. Grants-in-aid to voluntary organisations working for Hindi are released for spread and development of Hindi.

In order to assist non-Hindi speaking states/union territories to effectively implement three-language formula, financial assistance for appointment of Hindi teachers for upper primary, middle, high and higher secondary schools is also sanctioned. Financial assistance for setting up Hindi teachers training colleges in non-Hindi speaking states/union territories is being sanctioned under another Centrally-sponsored scheme. The grant-in-aid is provided mainly to assist the consolidation and further development of Hindi teachers training colleges in non-Hindi speaking states/union territories and to a limited extent, to assist the setting up of a new institution in such areas which are in need of such assistance.

Fifty scholarships are awarded every year to foreign students for study of Hindi in Central Hindi Institute, New Delhi. Hindi books are supplied for setting up Hindi libraries in Indian missions to provide material in Hindi where there is a sizeable population of Hindi speaking residents. Hindi typewriters and other equipment are also supplied. Hindi teachers are provided in Caribbean countries and Sri Lanka.

MODERN INDIAN LANGUAGES

Financial assistance is given to voluntary organisations and individuals to bring out publications like encyclopaedias, dictionaries, books of knowledge, original writing on linguistic, literary, Indological, social, anthropological and cultural themes, critical editions of old manuscripts, etc., for development of modern Indian languages. Grants are also given for holding literary conferences, seminars and exhibitions besides purchasing copies of printed publications. States are given special help for the production of university level books in regional languages The Bureau for Promotion of Urdu set up in 1969, apart from working as secretariat to Taraqqi-e-Urdu Board which advises the Government on development of Urdu, develops educational literature in Urdu. It has established 36 calligraphy centres, where instruction is given to students in *Kitabat*. Of these, four have been specially set up for women and three for training in decorative calligraphy.

Government also provides facilities for study of languages other than mother tongue. For this Central Institute of Indian Languages (CIIL) Mysore, conducts research in the areas of language analysis, language pedagogy, language technology and language use Study of tribal languages is one of its important functions. By now CIIL has taken up 57 tribal and border languages/dialects for linguistic description and material production. It supports six regional language centres at Bhubaneshwar, Mysore, Patiala, Pune, Solan and Lucknow to help meet demand for trained teachers to implement the three-language formula

ENGLISH AND FOREIGN LANGUAGES

Central Institute of English and Foreign Languages (CIEFL), Hyderabad, set up as an autonomous body in 1958, is engaged in bringing out qualitative improvement in teaching of English Subsequently, teaching of major foreign languages, *viz.*, Russian, German, French and Arabic and their literatures was also included in its activities. In 1973, it was declared to be an institution of higher learning deemed-to-be university. It has two regional centres at Shillong and Lucknow

Financial assistance is provided to states for setting up district centres for English with a view to improving the standard of English language teaching and learning. These centres aim at imparting training to teachers of English in their areas through orientation courses followed by long term professional support and guidance through correspondence. Under another scheme financial assistance is given to regional and state institutes of English for strengthening their programmes of training.

SANSKRIT AND OTHER CLASSICAL LANGUAGES

There are many schemes for propagation, popularisation and development of Sanskrit besides other classical languages like Arabic and Persian.

Main activities include financial assistance to voluntary Sanskrit organisations; development of institutions run by voluntary organisations into *Adarash Sanskrit Pathshalas;* for employment of professors, younger teachers; for publication of original writings of contemporary authors; editing and publication of rare manuscripts, and catalogues of manuscripts; reprinting of important out-of-print Sanskrit texts; promotion of oral Vedic tradition, vocational training to products of Sanskrit pathshalas; national awards to eminent scholars, and preparation/publication of Sanskrit dictionaries.

Registered organisations engaged in development and propagation of Sanskrit are given recurring and non-recurring grants for salary of teachers, scholarhips to students, construction and repair of buildings, library books, research projects, etc., up to 75 per cent of the approved expenditure.

During 1988-89 about 650 voluntary institutions conducting courses on traditional Sanskrit education and about 150 institutions working in the field of propagation and promotion of Arbic/Persian have been benefitted by this scheme. Institutions having potential for greater development are identified and brought under the scheme of Adarsh Sanskrit Pathshalas/ *Shodh Sansthans.* At present 14 such pathshalas are being run. Two to three more institutions are to be recognised under this scheme shortly.

Under the scheme of Certificate of Honour to Sanskrit, Arabic and Persian scholars, ten eminent Sanskrit scholars and two each in Arabic and Persian are honoured by President every year. They are also given a grant of Rs 10,000 per year for their life time. Till 1989, 286 scholars had been awarded this honour.

Department of Education also conducts an all-India Vedic convention and all India Sanskrit elocution contest in different parts of the country every year where about 100 scholars in different *Shastras* and a team of eight contestants from all states are invited with a view to identifying the rare *Veda Shakhas* and their repositories, devising ways and means for preserving the oral tradition and encouraging extempore speech on classical subjects. As a special incentive to preserve oral tradition of Vedic studies, a scheme was introduced during 1978 under which each *Swadhyayin* is expected to train two students each below 12 years, one of them being his own son or near relative, in a particular Veda Shakha. The scholar gets an honorarium of Rs 1,250 and the student Rs 175 per month. In all 15 such units are receiving assistance. Eight of them were set up after the Vedic convention held in New Delhi in August 1987.

Rashtriya Veda Vidya Pratishthan has been set up with the objective to preserve, conserve and develop oral tradition of Vedic recitation. For this the Pratishthan undertakes various activities such as supporting traditional Vedic institutions and scholars, providing fellowships, scholarships, etc.

A new scheme was introduced in 1982-83 to enhance employment opportunities to students from Kendriya Sanskrit Vidyapeeths and other traditional Sanskrit institutions. It aimed at providing short term vocational training to these students in subjects allied to Sanskrit studies, namely, ritualogy, epigraphy, manuscriptology, Sanskrit printing and composing, etc. For conducting these courses, 12 institutions were given cent per cent grant during 1988-89. Under *Shastra Chudamani* scheme, young scholars are given in-depth coaching in Kendriya Vidyapeeths/Adarsh Sanskrit Pathshalas, etc., in various disciplines by utilising services of eminent elderly scholars. These scholars are appointed on a monthly honorarium of Rs 1,000. Similarly,there are 25 institutions which are given 95 per cent grant for popularising Vedic education. Government is also providing financial assistance to eight Veda units which are engaged in the preservation of oral tradition of Vedic recitation.

Rashtriya Sanskrit Sansthan, an autonomous organisation, with its headquarters at Delhi, exercises academic and administrative control over eight Kendriya Sanskrit Vidyapeeths at Delhi, Jammu, Allahabad, Tirupati, Guruvayoor, Puri, Jaipur and Lucknow, where Post-graduate Sanskrit education in traditional Shastras and research in various fields are conducted. Vidyapeeths of Delhi and Tirupati have since been declared deemed-to-be universities. Besides 39 institutions in the country are affiliated to it for purposes of examination. It conducts examinations right from *Prathma* to *Vidyavaridhi* and *Vachaspati* (Ph.D. and D.Litt) respectively. Government is assisting contemporary authors of Sanskrit in publishing their books. The assistance has since been increased from 60 to 80 per cent of the approved expenditure. Research institutions and established departments of universities are also assisted to prepare and publish critical editions of rare manuscripts and catalogues in Sanskrit. During 1988-89, 30 publications, six catalogues and three critical editions were published with government assistance. Assistance ranging from Rs 1,500 to Rs 10,000 has been given to editors of 27 Sanskrit journals for improving their quality and content . Besides, Government is also assisting *Dharma Kosh Mandal*, Wai; *all India Kashiraj Trust*, Varanasi; Kalpataru Research Academy, Bangalore, and some individuals for preparation and publication of certain projects relating to Sanskrit literature.

A programme has been launched from 1982-83 to bring out reproduction of important out-of-print Sanskrit books by photo offset process at reasonable prices through commercial publishers. Under it, about 100 publications have come out so far. Old and eminent Sanskrit scholars in indigent circumstances are being helped to the extent of Rs 3,000 per annum minus their personal annual income, which has been enhanced to Rs 4,000 per annum. About 1,500 scholars received this assistance in 1988-89.

Department of Electronics has drawn up a programme, namely, Technology Development for Indian Languages (TDIL) for implementation during Eighth Plan. This programme would cover development of requisite technology for information processing in Urdu language also. TDIL would include technology development activities mainly in these thrust areas: learning systems, machine translation systems and human machine interface systems.

6 Cultural Activities

COMPOSITE culture of India is essentially an expression of inner urges and cumulative beliefs of people gathered through centuries of experience. It is the perennial flow of this cultural stream which determines nation's strength, character and capacity to survive as an integrated living reality despite heavy odds and its continuous march forward on the path of progress. Keeping this in view, preservation of cultural heritage, inculcation of art consciousness among people and promotion of high standards of creative and performing arts and dissemination of culture, have been made part of the objectives of State policy.

Central and state governments strive for promotion and dissemination of art and culture through national and regional academies of art, dance, drama, music and letters. Zonal cultural centres have been set up for projecting, preserving and sustaining cultural kinship that transcends territorial limits. In addition, Indira Gandhi National Centre for Arts is being set up at New Delhi as a resource centre and data base. All these institutions and Departments of Art and Culture are helped in their objective by media and voluntary agencies. Apart from this, some eminent persons in the field of fine arts are nominated by President to the Rajya Sabha.

VISUAL ARTS

PAINTING

Important traditions of Indian painting include the murals of Ajanta, Ellora and other frescoes, Buddhist palm leaf manuscripts, Jain texts, Deccan, Mughal, Rajput and Kangra schools. Bengal renaissance and modern trends bring it to the present. Modern trends in Europe and elsewhere have influenced modern Indian painting. Indian folk art and themes have been successfully revived and accepted.

ARCHITECTURE AND SCULPTURE

Architecture and sculpture in India were inspired mainly through religious motif, best examples are temples, mosques, fortresses, palaces and other monuments which dot landscape. Massive buildings that have come up after independence and city of Chandigarh symbolise the beginning of the modern period of Indian architecture. Contemporary Indian sculptors have contributed substantially to the creation of a new awareness of mass, volume and space.

LALIT KALA AKADEMI

To promote the understanding of Indian art, both within and outside the country, Government established Lalit Kala Akademi (National Academy of Fine Arts) in 1954 The Akademi strives to promote this objective through exhibitions, publications, workshops and camps. Every year it holds a national exhibition and every three years, Triennale-India, an international exhibition.

The Akademi brings out monographs and portfolios on ancient Indian art both in English and Hindi. It also publishes a bi-annual art journal *Lalit Kala Contemporary* and also *Lalit Kala* specifically meant for ancient Indian art. Hindi journal *Samkaleen Kala* is also a regular feature.

Lalit Kala Akademi also undertakes to bring out multi-colour reproduction of artists' work which is mainly devoted to contemporary Indian art. Occasionally books on contemporary art by eminent writers and art critics are also brought out besides important seminar papers and illustrated catalogues for all important and major exhibitions.

The Akademi organises artists' camps, seminars and lectures and gives grants to recognised art organisations. It honours eminent artists by electing them as fellows So far 41 persons have been conferred fellowship.

Fellowship amount from this year onwards is Rs 25,000. Ten awards of Rs 10,000 each are given to artists on the occasion of national exhibition.

The Akademi has permanent artists' studio complex for training and practice in painting, ceramies, graphics and sculpture at New Delhi, Calcutta, Lucknow, Bhubaneshwar and Madras. It has regional centres at Madras and Lucknow where facilities for practical training and work have also been provided. A new regional centre has been set up in Bhubaneshwar.

The Akademi has a specialised art reference library. It has important publications on Indian and western art (both ancient and contemporary).

PERFORMING ARTS

MUSIC

Two main schools of classical music *Hindustani* and *Carnatic* continue to survive through oral tradition being passed on by teacher to disciple. This has led to the existence of family traditions called *gharanas* and *sampradayas.*

Patronage to music is both state-supported and popular. Sangeet Natak Akademi, All India Radio, Doordarshan, films, voluntary organisations and cultural associations are the main agencies contributing to nationwide awareness and appreciation of music.

In recent years, there has been a great revival of interest in folk and tribal music. It has been staged in various cities. Another category of music, known as light music is gaining popularity.

DANCE

Dance in India has an unbroken tradition of over 2,000 years. Its themes are derived from mythology, legends and classical literature, two main divisions being classical and folk. Classical dance forms are based on ancient dance discipline and have rigid rules of presentation. Important among them are *Bharat Natyam*, *Kathakali*, *Kathak*, *Manipuri*, *Kuchipudi* and *Odissi*. Bharat Natyam has roots in Tamil Nadu. Kathakali is a dance-drama of Kerala and Kathak is principal classical dance of north India revitalised as a result of the fusion of Mughal influence with Indian culture. Manipur has contributed a delicate, lyrical style of dance, Manipuri. Kuchipudi is a dance-drama from Andhra Pradesh. Its themes are culled from *Ramayana* and *Mahabharata*. Odissi from Orissa, once practised as a temple dance, is today widely interpreted by artists. Folk and tribal dances of India are of numerous patterns.

Both the classical and folk dances owe their present popularity to institutions like Sangeet Natak Akademi and training institutes and cultural organisations. The Akademi gives financial assistance to cultural institutions and awards fellowships to scholars, performers and teachers to promote advanced study and training in different forms of dance and music, especially those which are rare.

THEATRE

Theatre in India is as old as her music and dance. Classical theatre survives only in some places. Folk theatre can be seen in its regional variants practically in every linguistic region. There is also professional theatre, mainly city-oriented. Besides, India has a rich tradition of puppet theatre prevalent form being puppets, rod puppets, glove puppets and leather puppets (shadow theatre).

There are several semi-professional and amateur theatre groups involved in staging plays in Indian languages and English.

SANGEET NATAK AKADEMI

Sangeet Natak Akademi, national academy of music, dance and drama, was set up in 1953 to promote the performing arts in collaboration with states and voluntary organisations. It seeks increased public appreciation of these art forms through sponsorship, research and dissemination. It holds seminars and festivals, presents awards to outstanding performing artistes, gives financial assistance for theatre productions, extends financial help to traditional teachers and grants scholarships to students. It operates a scheme of inter-state exchange of troupes to promote national and cultural integration through regional festivals and bringing rare art forms of the region to the fore.

The Akademi has set up a special unit for surveying and documenting various theatrical, musical and dance forms in the country. Its disc and tape library has the largest collection of Indian classical, folk and tribal music and dance and theatre items.

The Akademi runs two national institutions for training in dance—Kathak Kendra, New Delhi and Jawaharlal Nehru Manipur Dance Academy, Imphal. It helps in promoting puppet theatre. It gives subsidy for publication of books in various Indian languages and English on music, dance and drama. It also honours outstanding performing artistes and schools by conferring fellowships and annual awards.

NATIONAL SCHOOL OF DRAMA

National School of Drama (NSD), a premier theatre institution, was established in 1959 by Sangeet Natak Akademi. In 1975, the School was registered as an autonomous institution, fully financed by Government. It imparts training in dramatics and propagates theatre in the country. Teaching is imparted in a scientific way to talented and enthusiastic young students. It has played a constructive role in improving overall standard of plays and stage craft. It has gone to the regions for organising theatre workshops and children's theatre training courses to make available training facilities locally and initiate its students in folk, traditional and regional theatre forms. Under its three-year training programme, it awards scholarships and provides one-year fellowships. The School also provides training in theatre and contributes to development of Indian theatre by training actors, directors and stage technicians. It conducts a three-year diploma course and provides advanced theatre training in dramatic literature, acting, stage craft and production.

Repertory company attached to the School performs world classics as well as contemporary Indian and western plays. Besides staging performances in Delhi, it tours other parts of the country. NSD has also started Theatre-in-Education Company of adults playing for children, a new concept of meaningful theatre for children.

BROADCASTING

All India Radio and Doordarshan have been contributing to bring about an awareness and appreciation of Indian music-classical, light classical, folk and tribal. It has many national programmes to propagate music. *Vividh Bharati* service of All India Radio broadcasts popular film and light music.

LITERATURE

Rediscovery of ancient and medieval Indian literature and development of modern literature in major Indian languages and English mark literary activities in present-day India. A large number of literary periodicals and magazines, literary institutions and All India Radio have given impetus to the growth of modern Indian literature.

SAHITYA AKADEMI

Sahitya Akademi (National Academy of Letters) was set up in March 1954 for development of Indian letters and to set high literary standards to foster and coordinate literary activities in all Indian languages. It seeks to promote through them cultural unity of the country. The Akademi functions as an autonomous organisation. It honours persons of undisputed eminence in literature by electing them fellows whose number at no time is to exceed 21. At present there are twelve fellows: Vaikom Muhammad Basheer, K.V. Puttappa, Kalindi Charan Panigrahi, Sukumar Sen, V.R. Trivedi, K. Sivarama Karanth, K.R. Srinivasa Iyengar, V.K. Gokak, Mulk Raj Anand, Laxmanshastri Joshi, Thakazhi Sivasankara Pillai and Ananda Sankar Ray. The last six were elected in 1989.

The Akademi offers annual awards to works of outstanding merit in 22 recognised languages. Till 1988, 526 books had been awarded. Amount of award has been raised to Rs 25,000 from Rs 10,000. The Akademi also introduced prizes for translation—Rs 10,000 each in 22 Indian languages from 1989.

The Akademi organises literary gatherings, workshops, seminars, symposia and writers' meets to provide opportunities for writers to exchange views. It also provides travel grants to enable writers of one region to visit regions other than their own. It maintains a library at Rabindra Bhavan, New Delhi, which has about 83,000 books of literary importance in over 22 Indian languages and some foreign languages besides over 200 journals for reading and reference. The Akademi is participating in the implementation of UNESCO's major project of Mutual Appreciation of Eastern and Western Cultural Values It also maintains contact with several literary and cultural institutions in foreign countries to encourage better appreciation of Indian literature abroad. The Akademi is compiling a critical inventory of Ramayana studies in the world which has been adopted by Union Academique Internationale. Brussels.

Akademi's publication programme is devised to meet the challenge posed by a multilingual society *i.e*, while Indian literature is one, writers and readers in one language know very little of what is being written in the language of the neighbouring region of the same country. This is done in two ways first by publishing informative material regarding literary activities in all Indian languages, second by publishing translation of literary masterpieces both old and modern, from one Indian language into other. This is also supplemented by translations of foreign classics into Indian languages so that the best of the world literature is available in Indian languages. The Akademi is also engaged in publishing translations of its award-winning books

Some important publications are: National Bibliography of Indian Literature (1901-1953) (4 volumes), Who's Who of Indian Writers (1983), Histories of Literature (15 volumes), Monographs in Makers of Indian Literature Series (more than 100 volumes), Encyclopaedia of Indian Literature (3 volumes) and Anthologies and Selections. It has so far published about 1,500 books in 24 languages. The Akademi also publishes three journals: *Indian Literature*, a bi-monthly in English, *Samakaleena Bharatiya Sahitya*, a quarterly in Hindi and *Sanskrita Pratibha*—a half-yearly in Sanskrit. Some of the important publications proposed to be published shortly are Integrated History of Indian Literature, Anthology of Modern Indian Literature and Who's Who of Akademi Award Winners.

The Akademi arranges *Samvatsar Lectures* (annual lectures) delivered by eminent writers at the time of 'Annual Festival of Letters' generally held in February. It has introduced a programme 'Meet the Author' where eminent men of letters are invited to speak about their own personal experiences. Under another programme 'Men and Books', eminent persons, not necessarily literary men, are invited to speak on literary books they have enjoyed reading or books which have given them new insights.

The Akademi has established four regional boards for pursuit of inter-regional studies. Besides, a language development board for development of non-recognised Indian languages, has been established. The Akademi is also working on a National Register of Translators to be published shortly.

FELLOWSHIPS AND FINANCIAL ASSISTANCE

To provide basic financial support to outstanding persons for creative work in various fields of performing, plastic and literary arts in the age group (25-65) 30 senior fellowships and 75 junior fellowships of Rs 1,000 and Rs 500 respectively per month, each tenable for two years, are awarded every year since 1988-89. Earlier, the number was 15 and 35 respectively. These fellowships are given for specified schemes and projects suggested either by individuals themselves or selected at Government initiative.

Ten eminent artistes with high degree of excellence and national/international fame who have retired from professions are awarded fellowships of Rs 2,000 per year for continuing experiments in their fields.

Persons distinguished in letters, arts and such other walks of life being above 58 years of age and with an income of less than Rs 1,000 a month, are considered for grant of financial assistance up to Rs 600 a month. Young artistes of outstanding promise in the age-group (18-28) are awarded 150 scholarships every year for advanced training in music, classical forms of Indian dances, traditional theatre, drama, painting and sculpture. A scholar gets Rs. 400 a month for two years.

ARCHAEOLOGY

Archaeological Survey of India (ASI), founded in 1861, is the leading institution in archaeological research and activities. It conducts programmes of large scale problem-oriented exploration and excavation of prehistoric, protohistoric and other ancient sites, besides architectural surveys, landscaping around monuments, chemical preservation of sculptures, monuments and museum objects, epigraphical research, maintenance of 31 archaeological museums located near ancient sites and group of monuments, publication of archaeological and epigraphical periodicals and books, etc. It also carries out preservation work of monuments and sites abroad.

The landmark of the Indian archaeology is the discovery of Indus Valley Civilization in 1921. After partition, practically all Harappan sites went over to Pakistan, but the systematic work of the ASI made it possible to discover many other Harappan sites along the riverbed of the Saraswati and western coast. The most important sites excavated include Lothal, Kalibangan, Ropar, Surkotada, Banawali, Hulas and Daimabad. Northern limit of the Harappan culture is Manda in Jammu and Kashmir and southern limit is Daimabad in Maharshtra.

Indian archaeologists have been successful in bridging the gap once known as 'Dark Period' of Indian history through discovery of neolithic and chalcolithic cultures in different parts of India. Notable sites include Gufkral, Burzahom, Mahagara, Chapanimando, Koldiwha, Brahmagiri, Banahalli Inamgaon, Kayathe, Nagda, Sanghol, Sringverpura, Hastinapur, Atranjikhera, Bhagwanpura, Jakhera, Mathura, etc.

Important sites excavated recently are: Udaigiri in Orissa which exposed monastery naming 'Madhopur' Mahavihar, Lalitgiri in Orissa revealed *chaityagriha* and monastery, Sannati in Karnataka exposed Ashokan inscription along with Buddhist remains and Alampur in Andhra Pradesh revealed temple structures. A cave was noticed at Ellora having painted human figurines. Shellmidden sites were unearthed in Andaman and Nicobar Islands. Excavation at St. Augustine Church in Goa revealed detailed plan of a bell tower and excavation at Thaneswar exposed remains from the Kushana to the late Mughal period.

More than 5,000 ancient remains and archaeological monuments protected under law as monuments of national importance, are looked after by ASI. Those not of national importance, are maintained by states.

Fourteen Indian monuments and five natural sites were inscribed under World Heritage List by December 1989. They include caves at Ajanta, Kailasa temple at Ellora and Elephanta caves in Maharashtra; Churches and Convents in Goa; Fatehpur Sikri, Agra Fort and Taj Mahal in Uttar Pradesh; Mahabalipuram Ratha, Brihadesvara temple at Thanjavur in Tamil Nadu; Sun temple at Konark in Orissa; monuments at Hampi, temples at Pattadakal in Karnataka; temples at Khajuraho in Madhya Pradesh, and Buddhist monuments at Ranchi in Bihar.

Natural sites are Keoladeo National Park, Sunderbans National Park, Kaziranga National Park, Nanda Devi National Park and Manas wild life sanctuary.

Key preservation works undertaken by ASI include Buddhist site at Lalitgiri in Orissa; Sangamesvara temple at Bevoor; Krishna temple at Krishnapuram in Karnataka; deplastering of Jagannath temple in Orissa; transplantation of Sangamesvara Swami temple at Kudevelli, preservation of Sri Chhanakesva Swami temple, Bhimesvara Swami temple and Golkonda Fort in Andhra Pradesh.

Indian expertise in structural and chemical preservation is an acknowledged fact. Conservator teams from ASI were sent to Kampuchea to preserve the famous temple of Angkar-Wat, to Angola for setting up an army museum and to Bhutan for preservation of murals.

Implementation of the Ancient Monuments and Archaeological Sites and Remains Act, 1958 and the Antiquities and Art Treasure Act, 1972, is also carried out by ASI. Under the Antiquities and Art Treasure Act, 1972, any object which is over 100 years old (75 years in case of manuscripts, documents and the like) having artistic and archaeological interest can not be exported without a valid permit from ASI. Permit is also required for the export of works of art of some renowned artists, which have been declared as art treasures under the Act. At all international exit points, an expert advisory committee functions to issue non-antiquity certificates. The scheme of registration of sculptures and paintings in all media, besides illustrated, painted or illuminated manuscripts which are over 100 years old, is also in operation. The Act also requires that the trade in antiquities is to be carried out by persons duly licensed by ASI. As per the provisions of the Ancient Monuments and Archaeological Sites and Remains Act, 1958, permission is required for filming and photographing with stands at Centrally-protected monuments and museums. No archaeological excavation can be carried out anywhere in India without a licence issued by ASI.

ASI maintans 31 museums located near ancient sites and monuments with a view to propagating cultural activities of that particular locality. It conducts a two year Post-graduate diploma course in Archaeology at the Institute of Archaeology in Delhi which attracts students from India and neighbouring countries. The Institute also conducts short term courses in conservation and epigraphy. Various universities have introduced teaching archaeology at Post-graduate level

ASI publishes many of the memoirs, guide books and picture postcards of different monuments, besides its annual 'Indian Archaeology-A Review'. ASI library is one of the oldest in the country. It contains rare books and journals not only on India but also on South East Asia and West Asia. There is a separate library of photographs apart from a study collection of ancient ceramics and coins of Indo-Pak sub-continent.

MARINE ARCHAEOLOGY

Marine Archaeology Unit was set up in National Institute of Oceanography, Goa, with a view to exploring and excavating submerged ports and sunken ships. The project, supported by Department of Science and Technology, undertook offshore survey of legendary city of Dwarka on Gujarat coast, supposed to have been built by Sri Krishna and subsequently submerged under the sea. Underwater excavation in the ancient harbour seaward of Temple of Sea God *(Samudranarayana)* brought to light a submerged structure of massive building blocks corroborating the findings of onshore excavation in which three temples (1st-9th century AD) and two townships (10th and 15th century BC) were found destroyed by sea. Offshore explorartion of Bet Dwarka, an island settlement off Port Okha, associated with Sri Krishna's legend, yielded conclusive evidence of the submergence of a 15th-14th century BC town. A massive wall *in situ* in 3.6 metre water depth at high tide is found built on a wave-cut bench. Among important protohistoric antiquities recovered from underwater excavation, mention may be made of a unique late Indus Valley seal and an inscribed jar mentioning Sea God and seeking his protection.

Further excavation 600m seaward of Dwarka brought to light a submerged stone-built jetty and triangular stone anchors with three holes closely resembling those found in Ugarit (Syria) and Kition (Cyprus) is 1300 BC levels; Dwarka anchors also belong to the same period. Ancient city of Dwarka is found to have extended over two km up to Rupen. City of Bet Dwarka (Shankhodara) was four km long as attested by the submerged walls *in situ* near Balapur Bay. It is now obvious that the second urbanisation in India took place during the 15th-14th century BC, a thousand years before the Achaemenid cities came into existence. Iron objects found in Bet Dwarka waters indicate that the iron technology was in a primitive stage.

Excavation in the Arabian Sea 700m seaward of the temple of Sea God brought to light remnants of fortification walls and bastion built of massive limestone blocks confirming thereby that the ancient city of Dwarka was fortified as described in Mahabharata. It is termed a *Varidurga* (a fortress in water). The submerged structures are *in situ* at 6.14m below mean sea level and the ancient sea level must have been 9 m below the present one. The thermoluminiscence date of pottery from the section of the wall is 3,520 years Before Present This date corroborating the archaeological evidence fixes the date of Mahabharata also.

Marine records of state and National Archives were examined and particulars of 200 shipwrecks in Indian waters were noted. Among them 30 wrecks are of historical significance It is proposed to explore and excavate a couple of them. Shipwrecks in Sri Lanka, Mauritius and Malaysia waters also find mention in these records. The twin objective of marine archaeological investigations is to reconstruct the history of maritime trade, shipbuilding and cultural migrations and to furnish data useful to sedimentologists and naval architects in dating the samples and ascertaining the coastal erosion.

Marine Archaeology Unit discovered a shipwreck four km off Marmugao harbour in Goa. This steel-hulled ship about 32 m long is covered by sediment and efforts are being made to identify and excavate the vessel lying buried in 1.5 m thick sediment.

While marine archaeology has given a new dimension to oceanography, the discovery of the legendary city of Dwarka has added a new chapter to Indian history. Data on sea level fluctuation generated by marine archaeology is useful for eustatic studies.

MUSEUMS

Museums are repositories of cultural, historical, technical, industrial and other kinds of material for preservation against decay and held in trust for posterity and records of history. They also serve as important audio-visual means of education.

The Constitution makes states primarily responsible for setting up and maintenance of museums. Central government has, however, set up a number of important museums and provides financial assistance for development of private museums, university museums, etc. Great emphasis is laid on documentation of existing collection in government and private museums, preservation of collection using latest scientific aids and publication of catalogues of collections.

In the field of Indian art and archaeology, Government has established National Museum, New Delhi; Indian Museum, Calcutta and Salar Jung Museum, Hyderabad. Besides Allahabad Museum has also been taken over from Allahabad Municipal Corporation since 29 April 1986. In contemporary history and art, Victoria Memorial Hall, Calcutta, National Gallery of Modern Art, New Delhi and Nehru Memorial Museum and Library, New Delhi are three museums financed by Government.

National Museum, established in 1948, is one of the premier museums and its main activities are in the field of acquisition, exhibition, conservation, publication and education

Indian Museum, first museum of the country established in 1814, is the most illustrious art and archaeology museum. Salar Jung Museum has a wide range of collection of art objects It has more than 7,500 manuscripts in Persian, Arabic and Urdu. Victoria Memorial Hall is mainly a historical art gallery and contains relics and momentos relating to British period in India (1700-1900) This is now being converted into a period museum in which due place is being given to freedom struggle of Indian people Materials are being collected so as to set up an extensive gallery for projecting tribal and peasant movements of 18th and 19th centuries

There are at present 400 museums in the country managed by different agencies. Important among them are: Indian War Memorial and Archaeological Museum at Red Fort, National Museum of Natural History, Crafts Museum and Rail Transport Museum, all in New Delhi, Asutosh Museum, Calcutta; State Museum, Hyderabad; Prince of Wales Museum of Western India, Bombay; Government Museum, Madras; Bharat Kala Bhavan, Varanasi; State Museum, Lucknow, and Calico Textile Museum, Ahmadabad. There are archaeological museums at ancient sites, e.g., Konark, Amaravati, Nagarujnakonda, Sanchi, Nalanda, Sarnath, etc. There are also museums of dolls, textile design and for children in places like Delhi, Ahmadabad and Lucknow.

To promote dissemination of culture through museums, various programmes have been launched by each Central museum. This includes extension of their educational activities and organising periodical lectures and exhibitions to make people aware of their cultural heritage. A new scheme has been launched by Department of Culture under which museums are invited to organise on reciprocal basis exhibitions of their art treasures. The Department gives financial assistance to cover insurance, transportation, etc., of their art treasures.

TRAINING IN MUSEOLOGY

Regular degree and diploma courses in Museology are being conducted by universities of Aligarh, Vadodara, Bhopal, Calcutta, Pilani and Varanasi. Besides National Institute of History of Art, Conservation and Museology has been set up to provide for various courses of study, training and research in different branches of history of art, museology, archaeology, primitive art, archival studies and conservation of cultural property, etc.

Government organises annually museum camps at different places. Last camp was held in Vadodara in March 1989. Government also awards fellowships for training in India and abroad. National Museum, New Delhi in conjunction with National Gallery of Modern Art/Victoria Memorial Hall and National Research Laboratory for Conservation of Cultural Property has taken up a project in restoration and preservation of art works of non-Indian origin.

NATIONAL COUNCIL OF SCIENCE MUSEUMS

National Council of Science Museums (NCSM), Calcutta was set up in April 1978 as an autonomous organisation, for popularisation of science through the then existing science museums in India *viz.*, Birla Industrial and Technological Museum (BITM), Calcutta, Visvesvaraya Industrial and Technological Museum (VITM), Bangalore and Nehru Science Centre, Bombay. It was also given the task of setting up a chain of science museums and centres of various levels at different places. Within a decade, science museums and centres came up at Purulia, Gulbarga, Dharampur, Tirunelveli, Patna and Bombay. Two regional science centres at Bhubaneshwar and Lucknow were set up in September 1989. Two such centres at Guwahati and Nagpur and National Science Centre in Delhi have also been completed.

Plans are afoot for setting up a regional science centre at Tirupati and four sub-regional science centres at Imphal, Goa, Calicut and Vijayawada. NCSM has set up a Central Research and Training Laboratory (CRTL) for research and development of exhibit prototypes and training of museum personnel in all disciplines. The Council through its constituent units regularly conducts multifarious educational activities for children, students, teachers, rural people, housewives and unemployed youth.

NCSM took part in Festival of India in USA (1985-87) and in USSR (1987-88) with travelling science exhibitions which were a tremendous success in both the countries.

ARCHIVES

Records and manuscripts constitute an important part of our rich cultural heritage. These are major repositories of the contribution that our predecessors made in diverse fields of religion, philosophy, astronomy, literature, history, medicine and science. They are primary source of reconstruction of India's past. Government has jurisdiction only over its libraries and notified institutions of national importance. However, it takes initiative to secure voluntary cooperation of states in promoting a coordinated development of national, state and other libraries.

NATIONAL ARCHIVES

National Archives of India (NAI), known till independence as Imperial Record Department, was established in 1891. It is the premier organised repository in Asia, with its holdings running over 30 km of linear shelf space. It has three regional repositories at Bhopal, Jaipur and Pondicherry.

Major activities of NAI include: (i) accessioning of public records, making such records accessible to various government agencies and research scholars, and preparation of reference material; (ii) preservation and maintenance of records, and conducting of scientific investigations; (iii) evolving records management programmes; (iv) rendering technical assistance to outside agencies in the field, and (v) promoting archival consciousness. This is mainly done by celebrating 'Archives Week' every year and holding thematic exhibitions based on public and private records in its custody.

Significant accessions amongst public records are from Ministry of Defence, Ministry of External Affairs and Cabinet Secretariat, besides Gandhi Papers (1902-56) containing Gandhi-Polak correspondence. The Indian Historical Records Commission functions as the advisory body to Government in matters relating to archives, and for which National Archives acts as secretariat. Besides publishing a bi-annual journal, *The Indian Archives and Bulletin of Research Thesis and Dissertation,* it also brings out a national register of private records, guides to different series of records and other reference media. Another scheme aims at publishing six volumes of guides to the holdings of the archival institutions in India under a UNESCO sponsored project, *Guide to the Sources of Asian History.* It runs a one-year diploma course and short term courses of eight weeks duration on different aspects of archival science in the School of Archival Studies, which is the only institution of its kind in Asia.

It has regular cultural exchange programmes with other countries. Under this experts from NAI visited archival repositories in Afghanistan and Spain. NAI also participated in an exhibition entitled "Druzhya-Dosti, Indo-USSR Links through the Ages" at Moscow during 23 May-10 July 1988 and in the return exhibition entitled "Dosti-Druzhya, India and the Soviet Union in Time and Space" at New Delhi during 18 October-20 November 1988.

NAI is bringing out a special volume of hitherto unpublished Urdu Letters of Maulana Azad.

MANUSCRIPT LIBRARIES

KHUDA BAKHSH ORIENTAL PUBLIC LIBRARY

Khuda Bakhsh Oriental Public Library, Patna, established in 1891, has the richest collection of Arabic and Persian manuscripts and Mughal paintings in the sub-continent. The Library was declared an institution of national importance in 1969 by an Act of Parliament. Besides its traditional activities of acquisition and preservation of manuscripts and books, it has brought out subjectwise 35 volumes of descriptive catalogues of its manuscripts. It also brings out a quarterly research journal. It has also published critical editions of rare manuscripts like *Diwan-e-Hafiz*, *Diwan-e-Mushafi*, *Diwan-e-Mubad*, etc., besides monographs, lectures, reproductions of rare and nearly extinct periodicals of Urdu. It holds annual and extension lectures on various disciplines including current affairs, besides workshops on a variety of subjects. To accelerate the pace of research it has started a five year programme of holding South Asian Regional Seminars on the relevant subjects of the library. For this it has instituted research fellowships, visiting and national fellowships. A Khuda Bakhsh Award has also been instituted on the pattern of Jnanpith and Sahitya Akademi awards for outstanding scholars in the concerned disciplines of the Library.

TMSSM LIBRARY

Thanjavur Maharaja Serfoji's Sarasvati Mahal (TMSSM) Library, Thanjavur is one of the few medieval libraries in the world It is a majestic repository of culture built up by successive dynasties of Nayak and Maratha kings of Tanjore. It was made a public library in 1918 by Madras Government. The Library was registered on 9 July 1986 as a society under the Tamil Nadu Registration Act, 1975. It has a rare and rich collection of about 44,512 manuscripts in Sanskrit, Marathi, Tamil, Telugu and other languages. A number of miniature paintings and colour drawings are very attractive. Besides it has a rare collection of about 4,500 books in European languages and 40,888 books in Indian languages covering various disciplines. The Library is also publishing books and a quarterly journal.

RAMPUR RAZA LIBRARY

Rampur Raza Library, Rampur has a collection of about 50,000 printed books, 15,000 manuscripts and about 900 miniature paintings, *bhojpatras*, etc. Nearly all important oriental languages like Arabic, Persian, Sanskrit, Urdu, Hindi, Pushto and Turkish are covered and manuscripts in these languages represent all important subjects. The Library has a large number of rare manuscripts. In the book section, hundreds of rare Arabic, Persian and Urdu books which are now out of print and important for higher research purposes are available. Other attractions of the collection are miniature paintings which are considered immensely valuable for researchers, scholars of Iranian tradition and Indo-Mughal art style of paintings.

ASIATIC SOCIETY

Asiatic Society, Calcutta was founded in 1784 by Sir William Jones (1746-1794), eminent Indologist, with the objective of inquiring into history, antiquities, arts, science and literature of Asia. This institution proved to be the fountain-head of all literary and scientific activities in India and patron of all Asiatic societies in the world. The Society has a rich collection of rare books, manuscripts, coins, old paintings, inscription and archival materials. It maintains a museum which includes an Ashokan Rock Edict, copper plates range in date from the third century BC to the 18th century and important documents for the study of Indian history and culture. The coin collections cover practically the whole range of Indian numismatics from the earliest issues to the latest. Amongst the important activities of the Society is publication of *Bibliotheca India*, which consists of a series of oriental texts in Sanskrit, Arabic, Persian, Bengali, Tibetan and other Asian languages and their translations.

Some other important manuscript libraries are: Government Oriental Library, Madras; Oriental Research Libraries at Pune and Vadodara; Sanskrit University Library Varanasi; Visheshwaranand Vedic Research Institute Library, Hoshiarpur, and Maulana Azad Aligarh Muslim University Library, Aligarh. In addition, there are over 500 other libraries belonging to state governments and private agencies which have thousands of manuscripts.

LIBRARIES

Libraries are the keepers of our history and culture. Development of library system is an important component of the scheme of non-formal and continuing education. Constitutionally the subject 'libraries' is included in State list. Centre has jurisdiction only over libraries established by it and institutions of national importance as declared by it. There are more than 60,000 libraries in the country.

National Library, Calcutta serves as a permanent repository of all reading and information material produced in India. It has nearly all printed material by Indians and by foreigners on India, in any language. Under the Delivery of Books Act, 1954 the Library is entitled to receive one copy of each publication published in the country. It is also a repository of United Nations publications. Over 22 lakh books besides periodicals, maps, manuscripts, newspapers and microfilm/microfische - running into lakhs of items are housed in the Library. It maintains exchange relation with nearly 200 institutions in about 84 countries.

Central Reference Library, Calcutta is responsible for compilation, publication and sale of *Indian National Bibliography*. This is a monthly/annual bibliography containing entries of current Indian publications in major Indian languages and English. The Library is also compiling and publishing *Index Indiana*, an annual index of selected articles appearing in current Indian periodicals in major Indian languages.

Delhi Public Library established in 1951 with financial and technical assistance from UNESCO has since developed into a big metropolitan public library system consisting of a central library, a zonal library, 29 branches/sub-branches and community libraries, a braille library, 14 braille mobile service points and seven braille deposit stations, 31 re-settlement colony libraries and reading rooms, two hospital libraries, a prisoners' library in Central Jail and a network of mobile service stations serving 81 areas and 21 deposit stations in Delhi.

Raja Rammohun Roy Library Foundation, Calcutta, a non-statutory autonomous body, supports and promotes library services in general and public library services in particular in cooperation with states/UTs and other voluntary agencies in the field.

COPYRIGHT LIBRARIES

Under the Delivery of Books and Newspapers (Public Libraries) Act, 1954, four libraries are entitled to receive a copy of every new book and magazine published in the country. These are National Library, Calcutta; Central Library Bombay; Cannemara Public Library, Madras, and Delhi Public Library, Delhi.

OTHER LIBRARIES

There are also specialised libraries providing facilities to researchers. Prominent among them are Indian Council of World Affairs, New Delhi; Indian Statistical Institute, Calcutta; Gokhale Institute, Pune; Theosophical Society, Madras; National Council of Applied Economic Research, Indian Institute of Public Administration, Central Secretariat Library all in New Delhi. Apart from these some of the bigger universities also have sizeable collections.

INSTITUTIONS OF TIBETAN AND OTHER HISTORICAL STUDIES

Indian scholars many centuries ago took arduous journeys across the Himalayas to Tibet and with them they carried Indian philosophy and thought. Evolution of Tibetan thought and culture was a consequence of this interaction.

After independence Buddhist institutions were set up in India such as School of Buddhist Philosophy, Leh, set up in 1959 and now renamed as Central Institute of Buddhist Studies, and Central Institute of Higher Tibetan Studies, Sarnath near Varanasi. These institutions fully financed by Department of Culture seek to preserve Tibetan culture and tradition and impart studies in ancient and traditional subjects through a modern university framework. They also conduct research in Tibetan studies. Government also gives grants to Sikkim Research Institute of Tibetology, Gangtok and Library of Tibetan Works and Archives, Dharmasala, Institute of Tibetan Studies was established in Varanasi as a wing of *Varanaseya Sanskrit Vishwa Vidyalaya.* It became a fully autonomous organisation in 1977 and was renamed as Central Institute of Higher Tibetan Studies. It was declared deemed-to-be university in April 1988. The Institute aims at bringing to light Tibetan heritage, particularly a body of knowledge of Indian heritage which was lost to Sanskrit and Pali, but was preserved in Tibet.

Central Institute of Buddhist Studies, Leh was established in 1959 to train students in Buddhist philosophy, literature and arts. It is affiliated to Sampurnanad Sanskrit Vishwa Vidyalaya, Varanasi.

FINANCIAL ASSISTANCE

Financial assistance of Rs 2 lakh per year is provided to voluntary Buddhist/Tibetan organisations including monasteries engaged in propagation and scientific development of Buddhist/Tibetan culture, tradition and research in relative fields. One hundred and forty institutions were selected for grants of financial assistance during 1989-90.

INSTITUTIONS OF ANTHROPOLOGY AND ETHNOLOGY

ANTHROPOLOGICAL SURVEY OF INDIA

Anthropological Survey of India, Calcutta is a research organisation under Department of Culture. Since its inception in 1945, it carries out researches on bio-cultural aspects of Indian population particularly on contemporary problems being faced by tribes and weaker sections. It conducts exploratory surveys to unearth, preserve and study ancient human remains. It generates and disseminates bio-cultural information of Indian populations through its anthropological museums and other media. In Seventh Plan programmes, 16 national projects had been identified including one entitled People of India. This project seeks to generate up-to-date ethnographic information on all communities of India (4,500) and highlight in particular the linkage that brings them together. The project is being implemented with the active participation of scholars from various universities, tribal research institutes and other organisations interested in this field of research. Through a computer format, data is processed so as to generate profile on each community. Nearly 99 per cent of the target has so far been achieved. Final reports on communities of several states/UTs have been finalised and are being edited for publication.

RASHTRIYA MANAV SANGRAHALAYA

Rashtriya Manav Sangrahalaya (RMS), Bhopal, earlier known as National Museum of Man, is conceived as an institution dedicated to depict the integrated story of humankind highlighting human biological and cultural evolution with a special reference to India. RMS is completely anthropological-oriented institution, with a focus on three major topics: (i) human evolution and variation; (ii) life and society in prehistoric times, and (iii) patterns of culture. The outstanding feature of the Sangrahalaya will be its outdoor complex with thematic permanent open-air exhibition. The Sangrahalaya will combine research with dissemination of knowledge through informal mode of education. The Sangrahalaya has developed 'Tribal Habitat', an open-air exhibition of tribal dwellings representing 13 tribal populations in different parts of the country. RMS is preparing an exhibition on the 'Rock Art Heritage' around the painted rock shelters. Two more open-air exhibitions will be developed shortly.

RMS is opening a new indoor exhibition gallery exclusively for holding periodical expositions. Among significant research and collection activities currently going on are search of biological and cultural remains of early humankind in Narmada basin and collection of rare ethnographic objects from selected areas on priority basis to salvage them from possible disappearance forever. Besides a reserve collection of specimens and exhibits to support targetted exhibitions, is also being built up.

NATIONAL RESEARCH LABORATORY FOR CONSERVATION OF CULTURAL PROPERTY

National Research Laboratory for Conservation of Cultural Property (NRLC), Lucknow, a premier institution of its kind in Asia, conducts fundamental research for development of better techniques for conservation of objects of art, archaeology, ethnology, etc. It provides technical advice to museums, archaeology departments, archives and other institutions having objects of cultural property. NRLC imparts training to curators, archaeologists and other custodians of art objects in 'Care and Maintenance of Museum Objects'. It trains conservators coming from countries of South and South East Asia. It has also acquired very sophisticated and advanced equipment under several UNDP projects. NRLC has a library which is one of the best on this discipline in the world. A regional conservation laboratory of NRLC has been set up at Mysore to cater to needs of southern states. Another regional laboratory at Calcutta will start soon to meet requirements of eastern region.

PROMOTION AND DISSEMINATION OF CULTURE

Centre for Cultural Resources and Training (CCRT) was set up in 1979 as an autonomous organisation fully financed by Government. Centre had taken over the scheme 'Propagation of Culture' which was being implemented by University of Delhi from 1970 onwards.

Broad objective of the Centre is to revitalise education system by creating an understanding and awareness among students about the plurality of regional cultures of India and integrating this knowledge with the curriculum subject. To fulfil its objectives, the Centre organises a number of training programmes for benefit of students, teachers drawn from schools and teacher educators from states particularly those from rural areas. Main thrust is on linking education with culture and making students aware of role of culture in all aspects of developmental programmes. Training programmes dwell on role of culture in science and technology, housing, agriculture, medicine, etc. An important component of training is creating an awareness amongst students and teachers of environmental pollution problems and their role in conservation and preservation of natural and cultural heritage.

The programme lays emphasis on demonstration of educational techniques in class-room situation for which the Centre invites a number of school students to work with teachers who have innovated various creative techniques for teaching. It also organises large youth camps in which school students from all over the country meet, work together and learn the value of conservation and protection of India's rich heritage.

The Centre is collecting resources in the form of slides, photographs, films and recordings so as to prepare cultural educational material for free distribution to schools. It also produces various other programmes in order to promote dissemination of culture.

CCRT implements Cultural Talent Search Scholarship Scheme, which was taekn over from Department of Culture in 1982 The scheme provides scholarships to outstanding children in the age group (10-14) studying either in recognised schools or belonging to families practising traditional, performing or other arts to develop their talent in various cultural fields particularly in rare art forms. Scholarship continues till the age of 20 or first year of university degree

CCRT has also a number of programmes for evaluation of teachers and their work after the training at the Centre. This evaluation and feedback help the Centre to improve training programmes and prepare educational material for use in schools. CCRT-trained teachers have taken the initiative to organise programmes for their colleagues in rural areas, bringing to them an understanding of India's rich heritage and enabling them to acquire skills in traditional crafts such as pottery, weaving, book binding, etc.

The Centre has also instituted an award 'CCRT Teacher Award', given every year. Teachers trained by CCRT are eligible for this award. They are selected from each state to encourage and recognise outstanding work/ performance in this field.

ZONAL CULTURAL CENTRES

Zonal cultural centres have been conceptualised with projecting cultural kinship transcending territorial bounds. The idea is to arouse and deepen awareness of local cultures and their fusion into zonal identity and finally submerging into rich diversity of India's composite culture. Besides, they also intend to document, preserve and sustain vanishing art forms and oral traditions. Involvement of artists and creative people has been inbuilt in the set-up through a system of autonomous governance.

Seven zonal cultural centres established under the scheme are: (i) North Zone Cultural Centre, Patiala, (ii) East Zone Cultural Centre, Santiniketan; (iii) South Zone Cultural Centre, Thanjavur; (iv) West Zone Cultural Centre, Udaipur; (v) North-Central Zone Cultural Centre, Allahabad; (vi) North-East Zone Cultural Centre; Dimapur, and (vii) South-Central Zone

Cultural Centre, Nagpur. Participation of states in more than one zonal cultural centre according to their cultural linkage is a special feature of the composition of different zonal centres.

INDIRA GANDHI NATIONAL CENTRE FOR ARTS

One of the major achievements in the field of arts and humanities in India was the establishement of a national institution of great significance, Indira Gandhi National Centre for Arts (IGNCA) to commemorate the memory of Indira Gandhi. The Centre, launched on 19 November 1985, will comprise a number of halls including a symphony concert hall, a national theatre, two museums, building for cultural archives focusing attention on the rich and varied oral traditions of Asia, a reference library, a fully automated and integrated computerised system for national information system and data bank on arts, humanities and social sciences and a research and publication wing. Once completed, the Centre will be the biggest and the largest cultural complex in the world.

The academic programmes of the Centre are conceived as interlocked programme of sub-institutions. Each has long-range projects of fundamental importance not only to India but also to Asia and other countries of the Third World.

SUB-INSTITUTIONS

INDIRA GANDHI KALA NIDHI

It will comprise (a) a cultural reference library of multi-media collections to serve as a major resource centre for research in humanities and arts, (b) a computerised national information system and data bank on arts, humanities and cultural heritage and (c) cultural archives and multi-media personal collections of artists/scholars.

INDIRA GANDHI KALA KOSA

It will undertake fundamental research and initiate long term programmes for (a) lexicon on fundamental concepts and inter-disciplinary glossaries/thesaurus on basic technical terminologies in arts and crafts, (b) series of fundamental texts of Indian arts, (c) series of reprints of critical writing on Indian arts and (d) a multi-volume encyclopaedia of Indian arts.

INDIRA GANDHI JANAPADA SAMPADA

It seeks to : (a) develop a core collection of material and documentation on folk and tribal arts and crafts; (b) make multi-media presentation; (c) launch multi-disciplinary lifestyle studies of tribal communities for evolving alternate models for study of Indian cultural phenomenon on its totality and inter-webbing of environmental, ecological, agricultural, socio-economic, cultural and political parameters; (d) establish a children's theatre, and (e) set up a conservation laboratory.

INDIRA GANDHI KALA DARSHANA

It aims at providing a forum for inter-disciplinary seminars, exhibitions and performance on unified themes and concepts. It will have three theatres and galleries.

SUTRADHARA

This will provide administrative, managerial and orgnisational support and services to all other such institutions.

A cultural reference library of multi-media collections with a computerised data bank has been set up and operationalised. The Centre has received donation of a large personal library of late National Professor Suniti Kumar Chatterjee and also gifts of libraries of other eminent intellectuals such as Thakur Jaideve Singh, Krishna Kriplani, etc. This library is a unique feature consiting of multi-media documentation including microfilms/microfiche of ancient Indian manuscripts, audio-visual cassettes, photographs, slides, etc.

IGNCA library is being strengthened with a long term target for covering basic material in multiple media such as microfilming the manuscript collection of Government Oriental Manuscripts Library (GOML) at Madras, Saraswati Mahal Library at Tanjore, Trivandrum Oriental Library and other repository centres in the country. Indian missions abroad have been approached for reprographic documentation of cultural source material with foreign repository insitutions like India Office Library, Victorial and Albert Museum, etc., in U.K., Bibliotheque Nationale in France, Berlin and Bonn, oriental institutions of Soviet Academy of Sciences; photographic/slide collections at Pennsylvania and New York Public Library, etc.

INDIA IN WORLD HERITAGE

World Heritage Committee, constituted by UNESCO under the provision of the International Convention for Protection of World Cultural and Natural Heritage, has recommended the inscription of 14 cultural monuments and five natural sites from India in World Heritage list. These are : (a) Cultural Monuments - Ajanta caves, Ellora caves, Agra Fort, Taj Mahal, Sun temple at Konark, churches and convents of Goa, group of monuments at Khajuraho, Mahabalipuram, Hampi, Fatehpur Sikri, and Pattadkul, Elephanta caves and Brihadisvara temple at Thanjavur, Buddhist monuments at Sanchi, and (b) Natural Sites - Kaziranga National Park, Manas wildlife sanctuary, Keoladeo National Park, Sunderbans National Park and Nanda Devi National Park.

NATIONAL COUNCIL FOR CULTURE

National Council for culture (formerly National Council of Arts) was set up on 19 September 1983 by Government for coordination of activities of institutions of arts, archaeology, anthropology, archives, museums and for providing guidelines for future plans and programmes of various institutions.

CULTURAL RELATIONS

Department of Culture has been actively pursuing a policy of cultural cooperation with many countries through a system of bilateral agreements and exchange programmes. While cultural agreements lay down broad principle of cooperation, these are implemented through cultural exchange programmes. At present, India has cultural agreements with 81 countries and cultural exchange programmes with 58 countries including the signing of the first Cultural and Educational Exchange Programme with Pakistan in July 1989.

FESTIVAL OF INDIA

A Festival of India was first held in UK in 1982. Its objective was to bring to outside world glimpses of India's cultural heritage in all its richness and variety. It was also to provide a window to contemporary India. The programmes comprise exhibition, performing arts, cinema and symposia.

Two more Festivals were held in 1985-86, one in France and the other in the United States. Emphasis in France was on performing arts and cinema with a few carefully chosen exhibitions, including the first ever exhibition on Indian architecture held in a foreign country. In the United States, a large number of exhibitions and symposia were organised in addition to performing art events and cinema. A number of organisations sponsored local or associated events under the festival banner. Festival of India covered over 100 cities and 15 crore people through actual events, television and media coverage during 18-month long exposition.

Festival of India in the USSR and a return Festival of the USSR in India were inaugurated on 3 July and 21 November 1987 respectively. Both the Festivals lasting one year were the largest ever ones in terms of scope and number of participants. They culminated with closing ceremonies on 8 July and 20 November 1988 respectively. 'Indian Manifestation' in Sweden in August-September 1987, 'Japan Month' in India in September-October 1987 and a return Festival of India in Japan from 15 April to October 1988, were held.

As a reciprocal measure, Festival of France in India was inaugurated in Bombay on 3 February 1989 in the presence of the President of France and our Prime Minister. A number of exhibitions, seminars and concerts were organised in Bombay, Delhi, Bangalore, Calcutta Chandigarh, Bhubaneshwar, Guwahati and other places. Peter Brook's film 'Mahabharat' was screened in Siri Fort Auditorium, New Delhi in November 1989. The grand finale was marked by a scintillating performance by 160-member Romain Rolland Choir group in New Delhi and Calcutta. In New Delhi the function held on 18 January 1990 was attended by Prime Minister V.P. Singh and French Prime Minister Rocard.

Return Festival of Sweden in India is slated this year. Festival of India in Federal Republic of Germany and return Festival of FRG in India are scheduled next year.

7 Scientific Research

INDIA has had a long and distinguished tradition in science from accomplishments of ancient times to great achievements during this century; the latter half, prior to independence has been related largely to pure research. At the time of independence, our scientific and technological infrastructure was neither strong nor organised in comparison with that of the developed world. This had resulted in our being technologically dependent on skills and expertise available in other countries during early years of independence. In the past four decades, an infrastructure and capability largely commensurate with meeting national needs has been created minimising our dependence on other countries. But we still have a long way to go in this field to be self-sufficient. A range of industries from small to the most sophisticated has been established covering wide range of utilities, services and goods. There is now a reservoir of expertise well acquainted with the most modern advances in basic and applied areas that is equipped to make choices between available technologies, to absorb readily new technologies and provide a framework for future national development.

SCIENCE AND TECHNOLOGY INFRASTRUCTURE

Scientific research in India is carried out under three major sectors, *viz.*, Central government, state governments and various in-house research and development units of industrial undertakings, both under public and private sectors. Bulk of research effort in the country is financed by major scientific departments/agencies such as Departments of Science and Technology, Atomic Energy, Space, Scientific and Industrial Research, Electronics, Non-Conventional Energy Sources, Environment, Ocean Development, Biotechnology agencies *i.e.*, Indian Council of Medical Research, Council of Scientific and Industrial Research, Indian Agricultural Research Institute, etc. There are about 200 research laboratories within the purview of these major scientific agencies carrying out research in different areas. Besides, there is a large number of scientific institutions under Central ministries/departments which carry out research programmes of practical relevance to their areas of responsibility. States supplement the efforts of Central government in areas like agriculture, animal husbandry, fisheries, public health, etc. Institutions of higher education carry out sizeable work in science and technology and are supported by University Grants Commission and Central and state governments. They also carry out sponsored research projects financed by different agencies.

A number of incentives are being provided by Government to industrial establishments in private and public sectors to encourage them to undertake research and development activities. Consequently, scientific research is gaining momentum in several industrial establishments. As on January 1988 there were over 1,000 in-house research and development units in public and private sectors, reorganised by Department of Scientific and Industrial Research. Also, recently a 'Pass Book' scheme has been introduced for import of scientific equipment liberally, by public-funded research institutions through Department of Science and Technology.

SCIENTIFIC POLICY RESOLUTION

Science policy of Government based on Scientific Policy Resolution adopted by Parliament on 4 March 1958, lays stress on Government's responsibility to secure for people the benefits from acquisition of scientific knowledge and practical application research. It is also Government's policy to encourage individual initiative for dissemination of knowledge and foster programmes to train scientific personnel to fulfil nation's needs in science, education, agriculture, industry and defence. In national priorities, science and technology has been recognised as major instrument for achieving national goals of self-reliance through economic and multifaceted socio-cultural development. New Departments of Environment, Ocean Development, Non-Conventional Energy Sources, Scientific and Industrial Research and Biotechnology have been set up to deal with nationally important and newly emerging areas that call for significant science and technology inputs. Significant achievements have been recorded since then.

TECHNOLOGY POLICY STATEMENT

Technology policy statement announced in January 1983 is in response to the need for guidelines to cover a wide-ranging and complex set of related areas keeping in mind capital-scarce character of a developing economy. It aims at ensuring that country's available natural endowments, especially human resources, are optimally utilised for continued increase in the well-being of all sections of people. Technological advancement is sought to solve country's multifarious problems and safeguard its independence and unity. Among its objectives are attainment of technological competence and self-reliance, provision of gainful employment, making traditional skills commercially competitive, ensuring maximum development with minimum capital, modernisation of equipment and technology, conservation of energy, ensuring harmony with environment, etc.

To evolve instruments for implementation of technology policy, Government set up in June 1983 a Technology Policy Implementation Committee. On completion of its tenure in mid-1987, it gave way to a new autonomous body Technology Information Forecasting and Assessment Council (TIFAC). It was constituted for strengthening national capabilities in technology forecasting and assessment and to provide Government with independent policy options and advice. Working under Department of Science and Technology, it monitors technological developments in India and abroad. TIFAC has undertaken an important project for integrated, computerised, interactive and decentralised nationally accessible technology information system called TIFACLINE.

EXPENDITURE

Expenditure on research and development and related scientific and technological activities increased from Rs 4.68 crore in 1950-51 to Rs 1,890.58 crore in 1984-85. It was estimated to be Rs 2,900 crore in 1986-87. Seventh Plan outlay for science and technology sector was Rs 7,535 crore compared to Sixth Plan outlay of Rs 3,716 crore. An idea of expenditure on scientific research and development at national level as also outlays for science and technology sector over the successive Plan periods is given in tables 7.1 and 7.2.

TABLE 7.1 EXPENDITURE ON SCIENTIFIC RESEARCH AND DEVELOPMENT AND RELATED ACTIVITIES

(Rs crore)

Sector	Expenditure on Research and Development 1984-85	1985-86	1986-87
Central Sector	1,510 77	1,752 04	2,289 25
State Sector	168 77	219 93	258.21
Private Sector	233 19	251 94	318 11
Total	1,912.73	2,223.91	2,865 57

TABLE 7.2 PROGRESS OF EXPENDITURE IN PLANS

(Rs crore)

Details	Plan	Non-Plan	Total
First Plan	14	6	20
Second Plan	33	34	67
Third Plan	71	73	144
Fourth Plan	142	231	373
Fifth Plan	693	688	1,381
Sixth Plan	2,064	1,652	3,716
Seventh Plan	4,398	3,137[1]	7,535

[1]. Estimated.

SCIENCE ADVISORY COUNCIL TO PM

Science Advisory Council to Prime Minister, an apex advisory body with a tenure of two years, considers variety of items keeping in view national priorities, *e.g.*, New Education Policy, Drug Policy, Minerals Policy, Report

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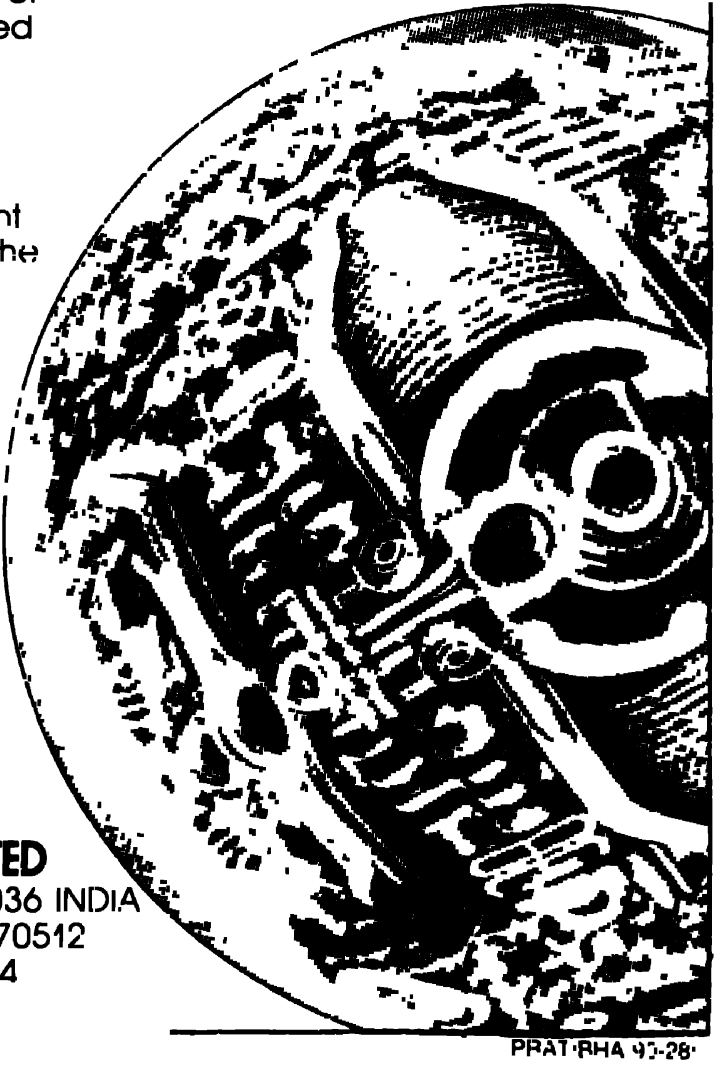

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of the Committee on Indian Scientists and Technologists working abroad, Project TIES, issues like health of science in India and Perspective Plan-2001 AD. It has initiated a number of studies in some new and emerging areas like instrumentation, parallel computing, materials, chemical industry, photonics, robotics, management of land and water resources and priorities in genetic research in India.

There is a Scientific Adviser to Prime Minister. Besides overseeing various scientific activities, his office also reviews a number of S and T projects by pursuing in a mission mode. Also there is an adviser to Prime Minister on technology who reviews following missions aimed at applying S and T on a large scale to national problems: (i) vaccination and immunization of vulnerable population, specially children; (ii) edible oilseeds-intensive cultivation and oil manufacture; (iii) better communication-telecommunications; (iv) drinking water in every village and water management, and (v) eradication of illiteracy.

SCIENCE AND TECHNOLOGY ADVISORY COMMITTEES

Science and technology plays key role in development of economy. In order to integrate science and technology in economic sectors and also to analyse introduction of appropriate technology, a science and technology advisory committee in each economic ministry has been proposed. Currently 19 ministries have set up such committees.

The committees are *inter-alia* required to make technology plan in concerned ministry and also to frame out programmes to absorb and adapt technologies. A nodal committee Inter-Sectoral Science and Technology Advisory Committee has been set up in Department of Science and Technology to identify and address cross-sectoral problems. It draws membership from all economic sectors as also from Council of Scientific and Industrial Research, Indian Council of Agricultural Research, Planning Commission, etc.

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Department of Science and Technology (DST) set up in 1971, has been assigned responsibility of formulating policy statements and guidelines on science and technology; promoting new areas of science and technology; undertaking or financially sponsoring scientific and technological surveys, research, design and development, and supporting national research institutions and scientific bodies. It coordinates all activities relating to international science and technology collaborations except in specific areas assigned to other agencies. It deals with promotion of and support to indigenous technology, disseminates scientific and technological information and coordinates multi-institutional inter-disciplinary activities in science and technology. It also provides secretarial support to Science Advisory Council to Prime Minister, National Science and Technology Entrepreneurship Development Board, National Council for Science and

Technology Communication, and Technology Information Forecasting and Assessment Council.

Over the years, the Department has made sustained efforts to promote and accelerate development of science and technology in areas relevant for societal application, coordination of inter-disciplinary multi-institutional programmes and providing support to academic and other research institutions for carrying out basic and applied research. The Department has been catalytic and instrumental in identifying, formulating and implementing a large number of programmes with the help of expertise available within the country and abroad, in frontline emerging areas such as biotechnology, materials, plasma physics, etc. These programmes are ultimately expected to yield results of direct relevance to national development.

SCIENCE AND TECHNOLOGY

PROMOTION SCHEMES

Two existing promotion schemes, *viz.*, General Research Scheme and Science and Engineering Research Council have been integrated into one, *i.e.*, R and D funding mechanism. Broad objectives of this scheme are: (i) to promote research in newly emerging and frontline areas of science and engineering including multi-disciplinary fields, and (ii) to selectively promote general research capabilities in relevant areas of science and engineering, taking into account existing research capabilities of host institutions. The Council approved 167 projects at a cost of over Rs 13 crore. State councils have been set up in 24 states/UTs so far.

As a part of promotional programme, emphasis has also been given to encourage participation of younger scientists in science and technology activities by providing them support for creative research through project support and for participation in international conferences. Besides, they are provided opportunities to interact with eminent scientists through contact programmes. As part of this scheme, a new programme has also been initiated to support young research workers who have extra spark of originality and motivation.

SCIENCE AND SOCIETY-RELATED SCHEMES

The Department has specific programmes to promote science and technology and its application to benefit specific disadvantaged groups. These are: (1) scheme for young scientists; (2) science and technology application for rural development; (3) science and technology for women; (4) science and technology for weaker sections, and (5) utilisation of scientific expertise of retired scientists. The sixth scheme 'better opportunities for young scientists' in chosen areas of science and technology was initiated in 1986 for building national capability in selected frontline areas through training of talented youth under guidance of pioneering experts at reputed international centres and utilising their talent to further expand expertise base of our institutions.

Pilot scale data base centres have been set up by NRDMS in 10 selected districts in different geo-environments for indepth understanding of the geo-referenced data for area-specific micro-level planning towards socio-economic development.

SUPPORT FACILITIES

Specially designed programmes for this objective relate to: (i) assistance to professional bodies, learned societies and science academies; (ii) support for organising national and international seminars; (iii) support for participation of Indian scientists in major international scientific conferences; (iv) setting up of regional sophisticated instrumentation centres; (v) long term support to scientific research institutions, and (vi) assistance to states and union territories to establish councils for science and technology.

Long term institutional infrastructural requirements for science and technology are met through creation of autonomous and independent structures under overall umbrella of the Department. States are also encouraged to set up secretariats and councils for science and technology to act as focal points for planning, coordinating and promoting science and technology activities. Councils for science and technology or departments of science and technology have been set up in nearly all states/UTs.

ENGINEERING AND TECHNOLOGY PROGRAMMES

Engineering and technology schemes cover research and development activities related to industrial, social, regional and consumer requirements in addition to research in frontline areas. Applied research is sponsored in close cooperation with industry and user agencies to build up competence in various sectors and to achieve self-reliance. Major activities under the scheme are: (i) Thrust area programmes—research and development projects are being encouraged and supported in: (a) membrane separation processes, (b) development of electrical materials, (c) lubrication technology, (d) irrigation and water management, and (e) robotics. (ii) Newer fibres and composites—initiated in 1975, this programme has centred around development of specific fibres and resin systems along with development of equipment and setting up of regional test laboratories and is now directed towards introducing polymers and their composites into industry through design, development and manufacture of specific products. The projects cover: (a) polymer alloys, (b) application as bio-materials, (c) wider application for rehabilitation aids, (d) scale-up of impregnating pitch, (e) specific applications in two-wheelers, four-wheelers, automobiles, marine vessels and aircraft, and (f) commercialisation of terephthalamide fibre. (iii) Cyrogenics and ceramics more-work on design, fabrication and testing of liquid nitrogen plant of 10 litre per hour is continuing till technology gets commercialised in 1991. An integrated programme on design, develop ment and fabrication of a liquid helium plant to meet indigenous conditions and requirements will be supported until it is commercialised in 1994,and (iv) National coordination of testing and calibration facilities—this programme has been formulated essentially to ensure and improve quality of industrial products, provide consumer protection and promote export of industrial goods. Objectives of the scheme are: establishment of accreditation/recognition by Central government of testing facilities in various sectors; setting up heirarchy of calibration laboratories and promotion of testing and calibration facilities to improve national needs. About 200 laboratories are expected to be accredited soon.

TECHNOLOGY DEVELOPMENT

TECHNOLOGY PROMOTION SCHEME

Technology Promotion Scheme aims at technology modernisation/ upgradation of industry/skills, specially that of relevance to small scale and cottage sectors of industry, besides sponsoring technology forecasting/ policy studies of interest to DST. This involves preparation of proposals in consultation with experts and its support by DST or undertaking activity in coordination with inter-institutional mechanisms. Theme of such projects normally focuses on its application/relevance to respective areas/industries. Several projects covering areas like microprocessor–based low-cost automation, continuous forming of helicoidal flights by rolling, development of expert systems for homoeopathy and ayurvedic systems of medicine, etc., were supported.

CONSUMER PROTECTION

The scheme was conceived to enhance consumer satisfaction through availability of better quality items of mass consumption. Areas covered involved identification of quality affecting parameters, prototype development and consumer education, while projects supported cover quality improvement through new S and T inputs, GLS lamps, electrical plugs/switches/sockets, starters and ballasts of tubelights, safety-match boxes, fabric washing powders/syndets, edible oils, pencils and sharpeners, textile fabrics, etc.

INITIATION OF TECHNOLOGY MISSIONS

The scheme was worked out to help identify new mission areas in addition to existing five technology missions *viz.*, immunization, oilseeds, telecommunications, drinking water and literacy. Some new missions to be identified may be tied up with existing ones to act as a catalyst/supporting sub-mission.

NATIONAL SUPERCONDUCTIVITY PROGRAMME

Coordinated efforts are underway towards development of stable and engineering use of high temperature (liquid nitrogen or higher) superconductivity materials, wires, thin films, etc., and its applications.

HIGH TECHNOLOGY ACQUISITIONS

Policy issues for acquisition of high technology are being formulated under this programme through inter-ministerial dialogues, as a follow-up work to technology policy statement.

INSTRUMENT DEVELOPMENT PROGRAMME

DST has been identified as nodal agency for undertaking national programme on instrument development involving users, industry and R and D centres. In order to formulate, coordinate and implement these programmes an instrument development cell was established in DST in 1975. The programme aims to promote design and development instruments leading to indigenous production and to promote instrumentation culture in the country. Instrument Advisory Committee comprising members from user agencies, industry and R and D organisations has been constituted to guide activities of the programme.

The Department has played catalytic role in supporting S and T activities in design and development of high-tech instruments through multi-institutional and multi-disciplinary programmes. Initial programmes were confined to development of opto-electronic instruments and solar energy measuring instruments. As a result of these efforts, a number of instruments *viz.*, audio-visual systems, optical pantograph, profile projector, sunshine recorder, pyranometer, etc., have been developed and are under regular production in Central Electronics Ltd., Sahibabad and National Instruments Ltd., Calcutta.

Second phase programmes have resulted in development of sophisticated scanning electron microscope and infrared spectrophotometer.

During Seventh Plan some of the identified instruments in critical areas *viz.*, analytical, geo-scientific, agro-electronics and laser-based instruments were supported for development. To ensure subsequent production, industries were associated with each project from beginning. Digital tide gauge, field-usable pH meter, low-cost instruments for chemistry teaching, ion selective electrode, seismograph, accelerometer, etc., have been developed and are in process of manufacture. In Eighth Plan period it is proposed to nurture instrumentation through an integrated programme of design, development, manufacture and maintenance. Design and development shall be undertaken by specially set-up centres one each in analytical instruments, process control instruments, test and measuring instruments and medical instruments. Production and maintenance will be undertaken by specially trained entrepreneurs. Low volume high-cost instruments will be developed through special project funding to R and D institutions where expertise exists. In order to oversee and formulate policies for these programmes R and D sub-council of Development Council of Instrumentation Industries, has been set up in DST.

ENTREPRENEURSHIP DEVELOPMENT BOARD

National Science and Technology Entrepreneurship Development Board established in 1982 has been devoting attention to providing increasing opportunities of gainful self-employment for science and technology persons since its inception. Some major programmes initiated are: (a) organisation of entrepreneurship development programmes; (b) creation of entrepreneurial awareness through camps; (c) setting up of science and technology entrepreneurs' parks; (d) establishment of entrepreneurship development cells in academic institutions; (e) setting up of task forces in selected backward districts for identifying resources, skill and need-based entrepreneurial opportunities for local S and T persons; (f) training teachers from colleges and universities in development of entrepreneurship skills; (g) introduction of entrepreneurship in course curricula of engineering degree, diploma and science courses; (h) encouraging group employment schemes, and (i) bringing out publications, videos and related material.

Main focus of the activities of the Board has been on promotion of entrepreneurship in small scale sector by S and T persons. About 456 new units have been set up through these measures. It has also been consistently promoting close interaction between academic institutions and industries to bring about upgradation in products, processes and equipment and also for commercialisation of indigenous technologies. In addition, about 2,600 jobs have been created on a sustained basis.

SCIENCE AND TECHNOLOGY COMMUNICATION

National Council for Science and Technology Communication (NCSTC), comprising representatives from Central and state governments, mass media, voluntary agencies, etc., has prepared detailed plans for popularisation of science and technology and growth of scientific and technological temper among people. NCSTC focuses its attention on areas like training in S and T communication; S and T communication information system comprising, among other things, a data base resource-letters for communications in different Indian languages and a newsletter for science clubs; development and dissemination of S and T communication software (all media); field projects involving large number of people in S and T communication activities; national awards for science popularisation; research in S and T communication, and coordination with other agencies in S and T communication.

NATURAL RESOURCES DATA MANAGEMENT SYSTEM

It is a multi-disciplinary and multi-agency project aimed at generating computer compatible spatially oriented data bases of natural resources and socio-economic parameters to facilitate area-specific micro-level planning. Launched in 1982 it aims at developing and operationalising a scientific methodology for management of data on natural resources, responsive to modern management needs. Experimental data bases have been set up in five districts, namely, Gurgaon (Haryana), Sultanpur (Uttar Pradesh), Kheda (Gujarat), Koraput (Orissa) and Vishakhapatnam (Andhra Pradesh). Five more data base centres are in the offing. Application projects indentified to demonstrate utility of these data bases relate to themes like management of water and land resources, monitoring of poverty alleviation programmes and location of services.

EARTH AND ATMOSPHERIC SCIENCES PROGRAMME

DEEP CONTINENTAL STUDIES

The project is aimed at using modern geological, geophysical and geochemical tools to obtain information of deep structure of Indian lithosphere. Initially a transect running from Jaipur to Raipur has been selected to carry out integrated field and laboratory studies. Projects relating to magnetotelluric and magneto-variation, geological mapping and remote sensing studies have been approved for support. In addition, laboratory investigations to determine high pressure temperature characteristics and mathematical modelling of geophysical data form important components of this project. A new project 'Metamorphic and geochemical studies of Deep Continental Crust in North-West Indian shield' has been sanctioned recently.

DEEP SEA FANS OF BAY OF BENGAL

This programme has been launched with a view to studying geological, geomorphological, structural and geophysical setting of deep sea fans and is expected to throw light on the nature of oceanic crust and various events in evolution of the Himalayas. Organisations like Geological Survey of India, Oil and Natural Gas Commission, Indian Institute of Geomagnetism, National Institute of Oceanography and other concerned universities are participating in the programme.

ALL-INDIA COORDINATED PROJECTS

SEISMOLOGY

This programme initiated during Sixth Plan continued in Seventh Plan. The infrastructure, e.g., seismic stations and strong motion seismic networks under the project at various locations in the Himalayan belt, has been generated and some recent events have been successfully recorded making many significant contributions in seismicity and seismotectonics of the Himalayas. Studies being pursued are expected to enhance our knowledge of earthquake mechanism, seismic risks, design codes and mitigation of earthquake hazards.

HIMALAYAN GLACIOLOGY

A multi-institutional and multi-disciplinary coordinated project had been initiated during 1986 for studying snow-cover mapping, glacial inventory, hydrometeorological and hydrological, geological and geomorphological aspects of glaciers. The project involves eight R and D institutions besides Himalayan states. During 1987, a glacial expedition to Chhota Shigri Glacier was organised and some geological, meteorological, hydrological and geophysical data collected. These studies will be helpful in evaluation of snowmelt/glacialmelt contribution in northern river system. Efforts would be made to link data collection platforms (DCPs) with INSAT for better understanding of glaciers.

ARID ZONE RESEARCH

This multi-institutional coordinated programme was launched in 1987 to enhance productivity of land, man and animal in arid land regions of the country with application of S and T. Projects ranging from monitoring the process of desertification, establishment of natural resource data bases, sand-dune dynamics to surface and ground water inter-relationship are being supported.

MONSOON TROUGH BOUNDARY LAYER STUDIES

Under this programme, data will be collected at sites covering continuously moist, periodically moist and mainly dry regions of monsoon by using both conventional and modern techniques like instrumented meteorological tower, doppler sodar, tether-sonde, mini-radiosonde radiometer, etc. Studies using these and other conventional data will lead to understanding of dynamics of monsoon, vagaries of which are intimately related to rainfall distribution in north India.

SEVERE LOCAL STORM STUDY

This project has been prepared with objectives of understanding genesis, development, movement, etc., of thunderstorms leading to realistic thunderstorm modelling under Indian conditions. This study will also help in parameterisation of convective processes in regional and global circulation model as well as for improving the present capabilities of weather forecasting particularly for aviation.

TROPICAL OCEAN AND GLOBAL ATMOSPHERE PROGRAMME

This project is being launched as part of international programme and

. includes deployment of data buoys, XBT lines, additional tide gauges, etc., and exchange of specified meteorologial and oceanographic data with participating countries. It will lead to improved understanding of oceanographic and atmospheric processes and air-sea interaction mechanism over tropical oceans and to develop reliable climate model relevant to our country. It will also help increase our capabilities for forecasting monsoon and cyclones.

WEATHER FORECASTING AND SUPER COMPUTER

Aimed with the objective to inform and guide farmers well in advance about various farming activities in view of the expected weather, National Centre for Medium Range Weather Forecasting with supercomputing and other necessary facilities is being established. As part of the programme, 127 Agromet field units in different agro-climatic zones will be established from where agro-meteorological advices will be issued to farmers for more efficient agricultural operations. A super computer system has been commissioned in New Delhi for this purpose. Department of Science and Technology is acting as nodal agency for implementation of the project in cooperation with India Meteorological Department, Indian Council for Agricultural Research, Ministry of Information and Broadcasting, Department of Agriculture and other relevant departments of states.

INTERNATIONAL COOPERATION

International collaborations are pursued with a view to gaining through interaction with other countries in areas of mutual interest, establishment of contacts with scientists and institutions, opening new avenues for further interaction, providing/receiving expert assistance through bilateral linkages, enhancing flow of S and T information through interaction between scientists and laboratories in other countries.

During 1987-88, several new initiatives took shape. These included: signing of integrated long term programme of cooperation in S and T between India and USSR in July 1987 and new instruments of collaboration in S and T with the Philippines, Venezuela and Mongolia. Indo-US cooperation in S and T gained further momentum under the auspices of Indo-US Sub-Commission in S and T and Science and Technology Initiative (STI). While Sub-Commission-sponsored activities were financed out of US-India Rupee Fund, joint research under STI was financed by both governments. Indo-French Centre for Promotion of Advanced Research has been set up in New Delhi jointly by Governments of India and France. It aims at promoting joint research in thrust areas of national relevance to both the countries. The Centre commenced its activities in 1987. Scientific Council of the Centre comprising experts from both the countries, identified thirteen areas for joint research.

Centre of Science and Technology for Non-aligned and other Developing Countries has also been established in New Delhi. Thirty two countries have so far signed the Statute of the Centre.

SCIENTIFIC SERVICES: SURVEYS AND METEOROLOGY

SURVEY OF INDIA

Survey of India, Dehra Dun prepares topographical and geographical maps of the country on various scales, needed for survey support for development and defence. It has undertaken several field and topographical surveys on various scales for developmental projects such as irrigation, power communication, flood control, water supply, forestry, coal fields, etc. It participates in various scientific research programmes related to geodesy, geophysical studies,including tidal predictions, indigenisation of surveying instruments and equipment, etc. It is also actively engaged in remote sensing applications in mapping besides advising Government on all survey matters *viz.*, geodesy, photogrammetry, cartography, reprography, demarcation of external boundaries of India and their depiction on maps. It is the national agency responsible for standardisation of geographical names. Aerial photography of the country is also coordinated by it.

For modernisation, it introduces latest survey technologies and is actively involved in generating computerised systems for creating national survey data and information network and laying foundation for digital computerised cartography. Collaborations in scientific studies are carried out at national as well as international levels.

Survey and Training Institute, Hyderabad imparts training to Indian nationals and those of neighbouring countries in various disciplines of surveying and mapping.

NATIONAL ATLAS AND THEMATIC MAPPING ORGANISATION

National Atlas and Thematic Mapping Organisation (NATMO), Calcutta is a premier cartographic institution engaged in compilation of various maps depicting physical and other socio-economic conditions of India. National atlas maps on various themes in Hindi, English and other regional languages have already been published or are under different stages of publication. It has undertaken digital mapping with the help of computers and is proposing to undertake mapping of resource potentials of the entire country for helping development planners and academicians.

INDIA METEOROLOGICAL DEPARTMENT

India Meteorological Department (IMD) set up on an all India basis in 1875, is the national agency for providing services in meteorology. Data collected from over 1,400 observatories of different types, including data collection platforms, is processed by it. IMD along with Indian Institute of Tropical Meteorology (IITM), Pune conducts fundamental and applied research in meteorological instrumentation, radar meteorology, seismology, agricultural meteorology, hydro-meteorology, satellite meteorology and air pollution. IITM has been conducting cloud seeding experiments for producing rain artificially.

Indian Institute of Astrophysics (IIA), Bangalore, Indian Institute of Geomagnetism (IIG), Bombay and IITM, Pune, which were formerly a part of India Meteorological Department, have been functioning as autonomous institutes since 1971. IIA conducts research in solar and stellar physics, radio astronomy, cosmic radiation, etc. IIG records magnetic observations and conducts research in geomagnetism.

IMD provides grants to certain universities/academic institutions to encourage research in atmospheric sciences and monsoon circulation. It also funds monsoon research by a centre in the Indian Institute of Technology, Delhi. A monsoon activity centre was established at New Delhi under World Meteorological Organisation Programme.

The Department has a positional astronomy centre at Calcutta which compiles and publishes *Indian Ephemeris* in English and *Rashtriya Panchang* in English, Hindi, Sanskrit and nine other Indian languages.

Meteorological and weather services are provided by IMD from its headquarters at New Delhi and functional offices responsible for climatology and forecasting at Pune. There are five regional meteorological centres at Bombay, Calcutta, Madras, Nagpur and New Delhi. For better coordination meteorological centres have been set up in 12 state capitals, *viz.*, Ahmadabad, Bangalore, Bhopal, Bhubaneshwar, Guwahati, Hyderabad, Jaipur, Lucknow, Patna, Srinagar, Trivandrum and Chandigarh. To render service to agriculturists, weather bulletins are issued daily since 1945 from meteorological centres relating to their regions. They give district-wise forecasts of weather and warnings against adverse weather. Agro-meteorological advisory service centres established at Madras, Pune, Calcutta, New Delhi, Bhopal, Chandigarh, Srinagar, Patna and Bhubaneshwar issue meteorological advisory bulletins to farmers once or twice a week. Flood meteorological offices have been working at ten different centres to provide meteorological support to flood forecasting organisation of Central Water Commission. Tourism departments at Centre and in states have access to meteorological centres for weather information of interest to tourists. Several tourism meteorological offices are functioning in Jammu and Kashmir.

IMD issues warnings against heavy rainfall, strong winds and cyclonic weather for general public and various private and public organisations including aviation, defence services, ships, ports, fishermen, mountaineering expeditions and agriculturists. One hundred disaster warning system receivers have been installed in disaster-prone coastal areas of north Tamil Nadu and south Andhra Pradesh. Fifty more receivers would be installed along coastal areas of West Bengal, Orissa, north Andhra Pradesh and Gujarat. In addition IMD operates 100 data collection platforms (DCPs).

Cyclone warnings to ports and ships are issued by Bombay, Culcutta, Vishakhapatnam, Bhubaneshwar and Madras offices. These are based on conventional meteorological observations from coastal and island observatories, ships in the Indian seas, coastal cyclone detection radars and cloud pictures received from weather satellites. Cyclone detection radar stations are located at Bombay, Goa, Cochin, Bhuj, Culcutta, Madras, Karaikal, Paradip, Vishakhapatnam and Machilipatnam. Weather satellite pictures transmitted by Indian National Satellite (INSAT-IB) are received at main data utilisation centre at Delhi and processed and transmitted to users. A cyclone warning and research centre at Madras investigates problems exclusively relating to tropical cyclones.

Meteorological data is exchanged with many countries through high speed telecommunication channels. As part of India's cooperation with World Weather Watch Programme of World Meteorological Organisation, a regional meteorological centre and a regional telecommunication hub function at New Delhi. An area forecast centre is also located in New Delhi under the plan of International Civil Aviation Organisation.

IMD participates in Indian scientific expeditions to Antarctica and scientific cruises of oceanographic research vessel *ORV Sagar Kanya.* A permanent meteorological observatory has been established at Dakshin Gangotri in Antarctica which functions round the year.

ATOMIC ENERGY

Today, India is recognised as one of few countries in the world having made considerable advances in nuclear energy. The country being self-reliant in this technology has established competence in carrying out activities over the entire nuclear fuel cycle. The Atomic Energy Commission (AEC) was set up in 1948 to formulate a policy for all atomic energy activities in the country. Department of Atomic Energy (DAE) was set up in 1954 as executive agency for implementing atomic energy programme.

DAE activities are primarily in nuclear power generation, research and development in atomic energy and in industries and minerals sector. These activities are carried out by its constituent units, public sector units (PSUs) and by institutions financially aided by DAE. India has also been offering training facilities, fellowships, scientific visits, etc., and makes available services of its scientists and engineers for expert assignments both through International Atomic Energy Agency (IAEA) and countries with bilateral agreements for cooperation in peaceful uses of nuclear energy.

ACTIVITIES AND ACHIEVEMENTS

When the country's atomic energy programme was launched in 1940s, a three-stage nuclear energy programme was envisaged to use uranium and vast thorium resources. First stage was to comprise natural uranium-fuelled pressurised heavy water reactors (PHWRs) which would produce power and plutonium as a by-product. Second stage is expected to have plutonium-fuelled fast breeder reactors (FBRs) to not only produce power and plutonium, but also Uranium-233 from thorium. Third stage reactors will be based on thorium cycle to produce more Uranium-233 for fuelling additional breeder reactors. Except for first two units at Tarapur, of boiling water reactor (BWR) type and set up as turnkey project by a US company, all other power reactors in the country are of PHWR type which constitute the first stage of the programme. DAE aims at establishing 10,000 MWe of nuclear power generation capacity from PHRWs by 2000 A.D. which is expected to contribute to about 10 per cent of country's total power generation capacity at that time.

The present installed capacity of electricity generation in atomic energy sector is 1,465 MWe. Total electricity generated in this sector during 1987-88 and 1988-89 was 5,035 and 5,817 million kw hours of electricity respectively.

Details of the programme formulated are given in table 7.3.

TABLE 7.3 ATOMIC POWER GENERATION PROGRAMME BY 2000 A D

Stage of implementation	Number of power stations (Units)	Capacity (MWe)
In operation	7	1,465
Under construction	7	1,645
Approved for construction	10	3,940
Envisaged for construction	6	3,000
Total	30	10,050

Inputs for PHWRs are heavy water and nuclear fuel produced by constituent units of DAE. Other units of the Department carry out exploration and survey of uranium resources, mining and processing them for production of uranium concentrates. Facilities are also being established for back-end of the nuclear fuel cycle to reprocess spent fuel from nuclear power reactors and for management of radioactive wastes.

Indian atomic energy programme is backed up by a comprehensive R and D programme encompassing wide range of multi-disciplinary activities relating to atomic energy. This includes fundamental research in basic sciences to disciplines like nuclear engineering, metallurgy, medicine, agriculture, isotopes, etc. Research is also being carried out in FBR technology and frontline areas like fusion, lasers and accelerators.

All DAE units engaged in these activities can be considered to be one of the following categories, namely, R and D units, PSUs, industries and mineral (I and M) sector units, aided institutions or service sector units.

RESEARCH AND DEVELOPMENT UNITS

R and D work is carried out at three research centers, namely, Bhabha Atomic Research Centre (BARC) at Trombay, Bombay, Indira Gandhi Centre for Atomic Research (IGCAR) at Kalpakkam, Tamil Nadu and Centre for Advanced Technology (CAT) at Indore, Madhya Pradesh.

BHABHA ATOMIC RESEARCH CENTRE

Bhabha Atomic Research Centre (BARC) was set up in 1957 as Atomic Energy Establishment, Trombay and in 1967 was renamed as BARC in memory of its founder. It is the premier national centre for R and D work in nuclear energy and related disciplines. Facilities available at BARC include research reactors, APSARA, CIRUS and PURNIMA II. Besides, a 5.5 MeV Van-de-Graff accelerator is also available for experimental research in physics. A large indigenously-built research reactor DHRUVA (100 MWt) is also operational at BARC. In collaboration with Tata Institute of Fundamental Research, BARC has set up a 14 MV pelletron accelerator, Beryllium Plant and a Radio Pharmaceuticals Laboratory at Vashi. BARC has facilities for spent fuel reprocessing and management of radioactive wastes. Power Reactor Fuel Reprocessing Plant and Nuclear Waste Vitrification Plant at Tarapur are managed by BARC. Variable Energy Cyclotron Centre at Calcutta is a national facility for advanced work in nuclear chemistry, production of isotopes for various applications and radiation damage studies on reactor materials. Seismic station at Gauribidanur near Bangalore set up in 1965 helps in detection and identification of underground nuclear explosions anywhere in the world. Nuclear Research Laboratory at Srinagar and High Altitude Research Laboratory at Gulmarg in Jammu and Kashmir conduct research in atmospheric physics and cosmic ray physics. Radiation Medicine Centre at Bombay uses radioisotopes for diagnostic and therapeutic applications. In radiopharmaceuticals, production facilities exist at Vashi, Bangalore and Hyderabad.

BARC activities encompass wide range of areas such as physics, chemistry, engineering, metallurgy, fuel reprocessing, fuel fabrication, radioisotopes, waste management, electronics, instrumentation, lasers, biology, agriculture, food technology, radiation medicine, etc. The Centre has several laboratories with state-of-the art equipment to carry out its R and D work in all these areas. It has developed a number of technologies, some of which have been transferred to industry for commercial exploitation. It also conducts a country-wide personnel monitoring service for evaluating radiation exposure of workers in institutions using radiation sources.

BARC has provided the entire R and D back-up for the nuclear power programme, which has significantly helped the establishment of indigenous competence in this technology. BARC also closely interacts with nuclear power and industry and minerals sector activities and carries out considerable developmental work to improve efficacy of their operations.

INDIRA GANDHI CENTRE FOR ATOMIC RESEARCH

This Centre was set up in 1971 at Kalpakkam (Tamil Nadu) to carry out R and D in FBR technology. Major facility here is an indigenously-constructed 15 MWe Fast Breeder Test Reactor (FBTR) which attained criticality in October 1985. The reactor core uses indigenously developed mixed carbide fuel. Completing FBTR was a major step towards embarking on the second stage of country's nuclear power programme. The Centre is drawing up plans to design and build a 500 MWe Prototype Fast Breeder

Reactor (PFBR), which is expected to be operational around the turn of this century. Several engineering test facilities such as sodium loops and laboratories for metallurgy, radiochemistry and fuel reprocessing related to fast reactors, also exist at the centre.

CENTRE FOR ADVANCED TECHNOLOGY

This Centre set up in 1984 at Indore, Madhya Pradesh, spearheads research in high technology fields such as fusion, lasers and accelerators. A synchrotron radiation source, being set up here, will be a major research facility in the country. The Centre is also establishing facilities to develop several types of lasers for wide range of applications in R and D, industry and medicine.

PUBLIC SECTOR UNITS

Four public sector units (PSUs) operate under DAE. They have a significant degree of operational flexibility and autonomy to meet their corporate objectives. Their operations are on commercial lines like any other commercial organisation.

NUCLEAR POWER CORPORATION OF INDIA LIMITED

This is the newest and largest of PSUs. It was set up in 1987 to implement nuclear power generation programme on commercial lines by converting erstwhile Nuclear Power Board into Nuclear Power Corporation of India Ltd. (NPCIL). It is responsible for designing, constructing, commissioning and operating all the seven nuclear power stations in the country: two units of 160 MWe each at Tarapur near Bombay; two units of 220 MWe each at Rawatbhata near Kota in Rajasthan; two units of 235 MWe each at Kalpakkam near Madras, and one unit of 235 MWe at Narora in Uttar Pradesh. Except for units at Tarapur which are boiling water reactors (BWR), all others are of PHWR type. While Rajasthan reactors were set up with Canada's assistance all subsequent reactors are of indigenous design and construction.

Several more 235 MWe PHWRs are under various stages of construction. Second unit at Narora is nearing completion and is expected to go critical during 1990. Construction on two reactors at Kakrapar near Surat in Gujarat is also in advanced stage and the first of these is also expected to be commissioned in 1990. Work is in progress on four more reactors—two each at Kaiga in Karanataka and Rawatbhata in Rajasthan. With timely implementation of the 10,000 MWe corporate programme in view, advance action has been initiated on four more 235 MWe units and six PHWR units of 500 MWe each. Detailed design and engineering of the 500 MWe PHWR units are also being done in-house by NPCIL. To meet growing demand for electricity in southern region, it has also been decided to set up two 1,000 MWe VVWR units (of pressurised water type) in Kudankulam, Tamil Nadu with USSR assistance.

URANIUM CORPORATION OF INDIA LIMITED

This organisation formed in 1967, is responsible for mining, milling and processing of uranium ores. Its end-product (uranium concentrates) is supplied to Nuclear Fuel Complex (NFC) for fabricating nuclear fuel. It is operating uranium mines at Jaduguda and Bhatin and an indigenously designed uranium mill at Jaduguda. The mine at Jaduguda is being expanded to mine ores located at deeper levels. It has set up uranium recovery plants at Surda, Rakha and Mosaboni. A by-product recovery plant has also been set up to recover minerals such as copper concentrates and molybdenum.

Mining and necessary milling facilities are being set up at Narwapahar and Turamdih in Bihar to meet increasing demand of uranium for nuclear power reactors. In addition, work at several more new locations is expected to be initiated in near future.

INDIAN RARE EARTHS LIMITED

This is the oldest of PSUs and has been in operation since 1950. It has two mineral sand separation plants one at Manavalakurichi in Tamil Nadu and the other at Chavara in Kerala. It also has a rare earths plant at Alwaye, Kerala which processes monazite in beach sands. It has set up a large project at Chhatrapur, Orissa, known as Orissa Sands Complex and manages a thorium plant at Trombay. Major products are ilmenite, synthetic rutile, zircon, rare earths chloride, etc. More than half of its projected sales of Rs 77 crore during 1989-90 was expected to come from exports.

ELECTRONICS CORPORATION OF INDIA LIMITED

This Corporation was set up at Hyderabad in 1967 to manufacture electronic systems, instruments and components developed at BARC required for carrying R and D work there. Subsequently, it has pioneered the production of varied range of sophisticated electronic systems, instruments and components for use in industry and nuclear power programme. Its products are based primarily on indigenous technology. It is one of India's leading organisations in computers, televisions, control and instrumentation, communication systems and nuclear electronics. During 1989-90 its turnover was expected to touch Rs 250 crore.

INDUSTRIES AND MINERALS SECTOR UNITS

There are several units in this sector. Some of their outputs go directly into nuclear power sector while others marketed directly.

ATOMIC MINERALS DIVISION

Atomic Minerals Division (AMD) is one of the first units of DAE set up by

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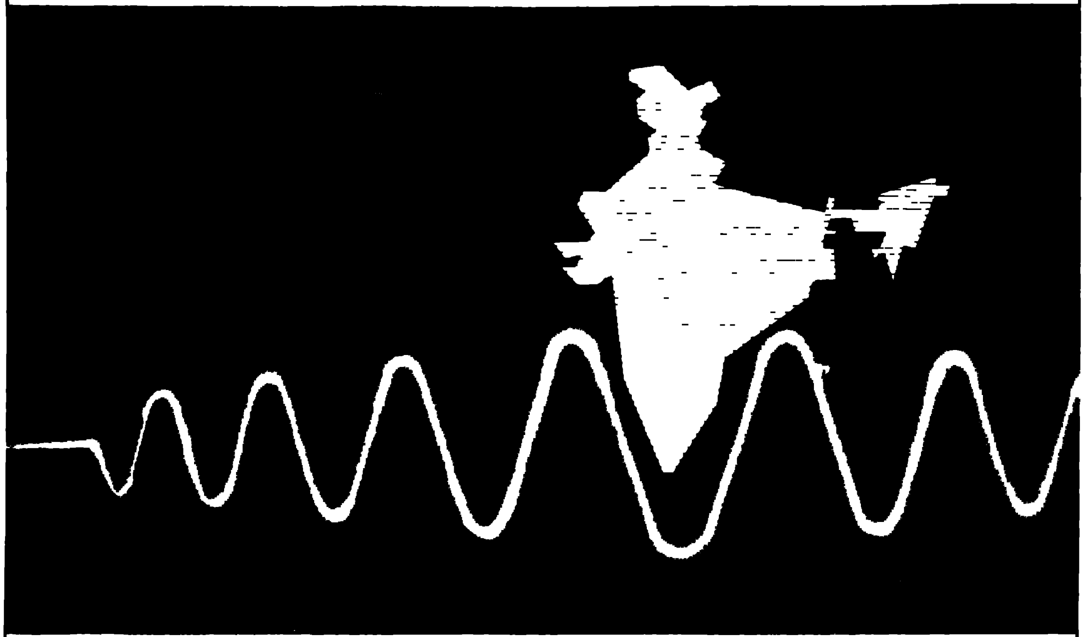

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NOT JUST TELEPHONES – TOTAL TELECOM NETWORKS

AEC in 1949 with headquarters at Hyderabad. It is a multi-disciplinary organisation entrusted with exploration, prospecting and related research and development activities for identifying atomic minerals resources in the country. It coordinates its work with UCIL to establish economic viability of uranium reserves at any given location so that UCIL can take up mining and processing of uranium with minimal delay. AMD employs a variety of state-of-the-art remote sensing techniques including air-borne radiometric surveys and computer-based analysis. It has done exploratory drilling in several areas of the country and has identified sufficient uranium reserves to support 10,000 MWe nuclear power programme. AMD has also drawn up plans to step up its exploratory activities to widen the resource base of uranium.

NUCLEAR FUEL COMPLEX

This unit located at Hyderabad, fabricates nuclear fuel for all nuclear power reactors in the country and produces zircaloy components and seamless stainless steel tubes. It has plants for converting uranium concentrates into ceramic grade natural uranium oxide and enriched uranium hexafluoride to enriched oxide. It also has facilities for processing zircon sand into zirconium oxide, zirconium sponge and finally zircaloy billets used to make zircaloy components for nuclear reactors Uranium oxide is finally converted to sintered and ground pellets which go to make nuclear fuel assemblies. Production of components such as blanket fuel containing thoria pellets, nickel and steel reflector assemblies and special assemblies required for FBTR and PFBR, forms part of this unit's fuel fabrication programme. Its special materials plant is a unique facility in the country for production and supply of high purity materials required for electronics and other industries. Plants have also been set up for production of seamless steel tubes and other special tubes. This unit also executes job orders for conversion of billets into requisite sections and mother pipes into finished tubular products. Corporate plans have been drawn up for projected needs of nuclear fuel and zircaloy components for nuclear power programme during the years to come.

HEAVY WATER BOARD

Heavy Water Board (HWB) is responsible for design, construction and operation of heavy water plants. Besides a small unit at Nangal, there are five operating plants at Vadodara in Gujarat, Rawatbhata in Rajasthan, Talcher in Orissa, Tuticorin in Tamil Nadu and Thal-Vaishet in Maharashtra. Two more plants are in advanced stage of construction at Manuguru in Andhra Pradesh and Hazira in Gujarat and these are expected to be operational during 1990-91. Heavy water plants employ different technologies for production on commercial scale. In fact hydrogen sulphide-water exchange process used at Kota and Manuguru plants was developed indigenously at BARC. HWB also has plans to commence work on additional heavy water projects.

BOARD OF RADIATION AND ISOTOPES TECHNOLOGY

To carry out activities related to radiation and radioisotope technology on commercial lines, the Board of Radiation Isotopes Technology (BRIT) was set up in March 1988. Its broad objects are to further the growth of isotope technology and support new applications in nuclear medicine, teletherapy, food irradiation and industry. BRIT has been entrusted with responsibility for processing of a variety of radioisotopes and their derived products, supply of industrial radiography equipment and gamma irradiation equipment for applications of radiation technology. At present it is using the existing facilities for this purpose. For promoting application of radiation technology in food preservation, BRIT plans to set up demonstration plants for irradiation treatment of food products such as spices and onions. Radioisotopes and related equipment are being produced indigenously at Trombay. About 400 radioactive products and labelled compounds are produced and every year about 50,000 consignments of radioisotopes and equipment are supplied to users in the country and abroad. Radioisotope technology is also used in development of high-yielding and disease-resistant mutants of rice, wheat, groundnut, pulses, etc. A commercial radiation sterilisation plant (ISOMED) at Trombay provides sterilisation services to medical industry.

AIDED INSTITUTIONS

Several autonomous scientific institutions are given direct financial aid by DAE. In addition, DAE also has a body called the Board of Research in Nuclear Sciences (BRNS) to encourage research in science and engineering in areas of interest to it. This is done by way of scholarships, grants, etc. DAE also gives financial aid to Institute of Mathematical Sciences (MATSCIENCE), Mehta Research Institute at Allahabad and National Board of Higher Mathematics.

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

This Institute was formed in 1945 as a centre for pursuit of fundamental research in mathematics, theoretical physics, cosmic rays and nuclear physics. Subsequently, its research activities expanded to areas like astronomy and astrophysics, chemical physics, molecular biology, solid state physics, solid state electronics and computer sciences. The facilities being operated by it include balloon facilities at Hyderabad, Radio Astronomy Centre and National Image-Processing Facility for Astronomy at Ootacamund (Tamil Nadu) and 500 MHz FT NMR national facility at its headquarters in Bombay. In addition, it manages activities of Homi Bhabha Centre for Science Education and Basic Dental Research Project.

TATA MEMORIAL CENTRE

Located at Bombay, this Centre comprises Tata Memorial Hospital and

Cancer Research Institute. It is the foremost in the country in the field of detection and treatment of cancer and cancer research. The Centre is recognised as a premier Post-graduate centre in oncology and allied subjects and is affiliated for this purpose to Bombay university.

SAHA INSTITUTE OF NUCLEAR PHYSICS

This Institute was established in 1951 at Calcutta. It provides facilities for advanced research in experimental and theoretical nuclear physics, solid state, atomic and molecular physics, plasma physics, high energy physics, crystallography, molecular biology, biophysics, nuclear chemistry and instrumentation.

INSTITUTE OF PHYSICS

Set up in 1974, this Institute was originally a registered society funded by government of Orissa and in 1985 it became one of the aided institutions of DAE. It provides facilities for advanced research in theoretical solid state, nuclear and high energy physics and experimental solid state physics. It is acquiring a 3MW Tandem pelletron accelerator for experimental research in atomic, nuclear, solid state and applied physics.

SUPPORTING UNITS

There are several other units and groups of DAE which render support to atomic energy programme. Their infrastructural support is available to one or more of other units to carry out certain functions and thereby improve efficacy of their operation.

DIRECTORATE OF PURCHASE AND STORES

This Directorate provides support to departmental units in their various materials management functions. Its transport and clearance wing handles consignments through air, rail, sea, road and post parcels. The Directorate also has a technical liaison mission in Paris to assist in inspection and follow-up of items purchased abroad.

CONSTRUCTION AND SERVICES GROUP

Construction and Services Group (C and SG) is responsible for construction and maintenance of various infrastructural facilities. C and SG prepares architectural design and executes the construction of office complexes, lab facilities and housing complexes. It also maintains existing building infrastructure and utilities.

ATOMIC ENERGY REGULATORY BOARD

Functionally, this is an autonomous body reporting to AEC. Constituted in

1983, it carries out regulatory and safety functions as envisaged under the Atomic Energy Act, 1962, covering all DAE units and other radiation installations operated by medical, industrial and research users in the country. It is empowered to frame rules and regulations related to safety and regulatory requirements and specify safety standards, codes and guides envisaged under the Atomic Energy Act, relating to site selection, design, construction, commissioning, operation and decommissioning of all nuclear installations. In addition, it has authority and responsibility to ensure compliance with standards and codes in both DAE and non-DAE organisations. The Board is assisted by a number of committees with eminent scientists and engineers from industry, universities, etc., as members. Commissioning of any nuclear installation, be it a power reactor or a small research reactor, has to be approved by the Board.

MANAGEMENT SERVICES GROUP

Management Services Group is an in-house multi-disciplinary group providing staff support for analysis and dissemination of management information to senior officials in DAE. It conducts perspective planning exercises on nuclear power, carries out financial analysis, feasibility studies and manpower planning, besides operating a multi-user computer centre and providing management consultancy services in information management to some DAE units.

CRISIS MANAGEMENT GROUP

Formed in October 1987 it is responsible for ensuring that each of DAE's nuclear installations is adequately prepared and equipped to deal with any possible emergency situation involving radiation/conventional hazards both at the installation and during their transportation. There is an on-going programme of updating emergency preparedness plans at all nuclear installations.

GENERAL SERVICES ORGANISATION

General Services Organisation (GSO) is responsible for provision of all general services to DAE units at Kalpakkam. It looks after estate management activities and other utilities.

DIRECTORATE OF ESTATE MANAGEMENT

Directorate of Estate Management is responsible for allotment of residential accommodation to DAE employees in Bombay. In addition, it manages land and buildings owned, leased or hired by the Department.

INTERNATIONAL COOPERATION

India has been offering training facilities, fellowships, scientific visits, etc., and makes available the services of its scientists for expert assignments both through the International Atomic Energy Association and the countries with which she has entered into bilateral agreements for cooperation in the field of peaceful uses of nuclear energy.

INDIAN SPACE PROGRAMME

Indian space programme is directed towards self-reliance in the use of space science and technology for national development. Main thrust is in the areas of: (i) satellite communications for various national applications including telecommunication, TV broadcast and radio networking, (ii) resources survey and management, environmental monitoring and meteorological services through remote sensing and (iii) development of indigenous satellites and launch vehicles to achieve the above objectives.

For promoting a unified development and application of space science and technology for national development, Space Commission and Department of Space were created in 1972 to evolve policies and guidelines to achieve envisaged objectives. Policies framed by Space Commission are implemented through Department of Space (DOS) and Indian Space Research Organisation (ISRO).

DOS is also the nodal agency charged with responsibility of establishing National Natural Resources Management System (NNRMS) in association with various Central and state agencies. Development activities of ISRO are carried out by following centres/units: Vikram Sarabhai Space Centre (VSSC), Trivandrum; ISRO Satellite Centre (ISAC), Bangalore; SHAR Centre at Sriharikota (Andhra Pradesh); Space Applications Centre (SAC), Ahmadabad; Liquid Propulsion Systems Centre (LPSC) with its facilities at Bangalore, Trivandrum and Mahendragiri; ISRO Telemetry Tracking and Command Network (ISTRAC) with its network of ground stations, and Development and Educational Communication Unit (DECU), Ahmadabad. Department of Space and ISRO headquarters are located at Bangalore. An allocation of Rs 434.86 crore has been envisaged for the space programme during 1990-91.

SPACE APPLICATIONS

INSAT SYSTEM

First generation Indian National Satellite System (INSAT-I) represents India's first step towards implementing operational space systems for identified national requirements. INSAT-I is a multi-agency multi-purpose operational satellite system for domestic telecommunications, meteorological observations and data relay, nation-wide direct satellite TV broadcasting to augmented community TV receivers in rural areas and nation-wide radio and TV programme distribution for rebroadcasting through terrestrial transmitters.

INSAT system is a joint venture of DOS, Department of Telecommunications (DOT), India Meteorological Department (IMD), All India Radio (AIR) and Doordarshan. Overall coordination and management of INSAT system rests with high level inter-ministerial INSAT Co-ordination Committee (ICC) under DOS. The Department has direct responsibility for establishment and operation of INSAT space segment.

INSAT-I system was envisaged with a space segment consisting of two multi-purpose satellites, one as primary satellite providing all services and the other as a major path satellite providing certain additional Fixed Satellite Service (FSS) utilisation and also certain on-orbit back-up capability. INSAT-IB satellite, launched in August 1983 and now in its sixth year of operational service, is operating as primary INSAT-I satellite from 74 °E longitude.

Initial INSAT-I space segment configuration was completed in the third quarter of 1988 with successful launch of INSAT-IC on 22 July 1988 and placement at 93.5 degrees longitude. However, power anomaly on one of the two power buses resulted in loss of one power bus. It has been so far operating with partial capacity. INSAT-ID the last of INSAT-1 series of satellites, was successfully launched from Florida, USA on 12 June 1990.

Presently 90 telecommunication earth stations are in operation in INSAT network, providing some 4,390 two-way voice or equivalent circuits over 117 routes. Two high-power, S-band transponders in INSAT-IB are utilised by Doordarshan for national networking, sustaining operations of low-power TV transmitters and for area-specific direct augmented TV receiver. 500 TV transmitters in the country receive national programme fed via INSAT-1B. Presently some 8,000 community TV sets are deployed in various parts of India for direct reception of INSAT-1B TV transmission. Meteorological Data Utilisation Centre (MDUC) in New Delhi is fully operational. MDUC processes the meteorological data from INSAT-1B / INSAT-1C collection platforms. As on 31 August 1989, Very High Resolution Radiometer (VHRR) on board INSAT-1B was commanded to give more than 26,999 images. INSAT-1B VHRR instrument joined the small and select group of geostationary VHRR instruments that have completed five years of continuous satisfactory operation without any failure or exercise of redundancy. Twenty two secondary data utilisation centres (SDUCs) are now operational, receiving real-time INSAT-IB/ INSAT-IC VHRR data processed by MDUC. The initial set of 100 data collection platforms for collection of meteorological and oceanographic data from remote and uninhabited locations, has been installed.

INSAT-1 spacecraft will be replaced by indigenously built INSAT-II satellites which will eventually be launched from India by Indian Geosynchronous Satellite Launch Vehicle (GSLV). Work on INSAT-II test spacecraft to precede the operational spacecraft series, has been already initiated. INSAT-II space segment configuration consists of three identical, multi-purpose spacecraft, two of them co-located at the primary orbital position and one at the major path orbital position. Each INSAT-II spacecraft will have enhanced service capabilities compared to INSAT-1 satellites. The first INSAT-II (test) satellite is expected to be launched in mid-1991 and the second a year thereafter.

INDIAN REMOTE SENSING SATELLITE

The first Indian Remote Sensing Satellite (IRS-1A) was successfully launched on 17 March 1988. The 975 kg satellite was put into 904 km Polar Sun Synchronous orbit by the Soviet launch vehicle 'VOSTOK' and the satellite was operationalised on 7 April 1988. Since then it has been providing data on natural resources of the country on an operational basis. The payload of IRS-1A consists of three state-of-the-art cameras using charge-coupled devices as detectors. Each provides data in four spectral bands, three of which are in the visible region and the fourth in the near infrared. More than 1,80,000 imageries over the Indian sub-continent have already been obtained and the country had been covered 29 times. IRS data products are available routinely from National Remote Sensing Agency (NRSA), Hyderabad. Quality of IRS imageries is comparable with those of both SPOT and LANDSAT. Data from IRS-1A is being regularly used for application in agriculture, forestry and hydrology, besides crop inventory and forecasts, forest mapping and damage detection, studies covering land use/land cover mapping, land degradation and desertification, wasteland mapping, soil mapping, flood mapping, etc. IRS-1A constitutes a major element of National Natural Resources Management System. In order to provide continuity in the services it is planned to launch one satellite every $2^1/_2 - 3$ years. Consequently, IRS-1B which is identical to IRS-1A is scheduled to be launched during 1991. Development of second generation satellites IRS-1C and ID, which will have improved spatial resolutions, additional spectral bands and capabilities for stereo imaging and revisit, has also been initiated. IRS-IC is planned to be launched during 1993-94.

MICROWAVE REMOTE SENSING

Data reception facilities at NRSA are being augmented for receiving data from European Microwave Remote Sensing Satellite ERS-1. In addition, development of an aircraft version of C-Band Synthetic Aperture Radar (SAR) which could provide valuable technological inputs to the design of a space-borne SAR has been undertaken. Aerial flights using Side Looking Aperture Radar (SLAR) are being carried out. After fully establishing its potential, microwave remote sensing will be taken up as a future mission.

NATIONAL NATURAL RESOURCES MANAGEMENT SYSTEM

National Natural Resources Management System (NNRMS) is conceived as a hybrid system utilising data/information from both conventional and remote sensing methods for optimal utilisation of natural resources of the country. Department of Space is the nodal agency for evolution and establishment of NNRMS. In collaboration with Central and state agencies, NNRMS undertakes a number of natural resources survey and monitoring projects. These cover ground water potential, wastelands, forestry, agriculture, water resources, geology, etc.

Successful launch and operationalisation of indigenous IRS-IA has provided considerable impetus to NNRMS activities. For proper implementation of projects, five regional remote sensing service centres (RRSSCs) have been started to help in data interpretation and analysis. These centres are equipped with image analysis system for this purpose. State remote sensing application centres with support and guidance from NNRMS, have been set up in 20 states.

REGIONAL REMOTE SENSING SERVICE CENTRES

In order to provide digital analysis facilities to remote sensing user community five RRSSCs have been established at Bangalore, Dehra Dun, Nagpur, Jodhpur and Kharagpur. These centres are equipped with interactive image analysis systems for carrying out analysis of various natural resources data from IRS, LANDSAT, SPOT and NOAA. These centres are involved in major tasks of: (i) remote sensing user services; (ii) remote sensing application mission; (iii) training of manpower for digital analysis techniques; (iv) software development; (v) application validation programme which is aimed at validating digital analysis methodology for various applications to standardise the application packages for operational use, and (vi) using advanced techniques like Geographic Information System, Digital Terrain Modelling, etc.

SPACE TECHNOLOGY

LAUNCH VEHICLE TECHNOLOGY

AUGMENTED SATELLITE LAUNCH VEHICLE

Augmented Satellite Launch Vehicle (ASLV) is an augmented version of the first Indian Satellite Launch Vehicle (SLV-3). ASLV is designed to augment indigenous satellite launch capabilities to place 150 kg class satellites into low earth orbit. ASLV will also validate a number of important advanced technologies needed for larger launch vehicles of the country such as PSLV/GSLV. It uses SLV-3 core vehicle with two strap-on booster motors to enable orbiting of 150 kg class satellites in 400 km low earth orbits. The design employs new technological elements such as vertical integration of launch vehicle, canted nozzle boosters, a closed-loop guidance system, S-band TTC systems and a bulbous metallic headshield. The first ASLV Development Launch (ASLV-D1) was carried out on 24 March 1987. The launch vehicle had a malfunction in its first stage after a smooth liftoff. However, the flight validated a number of new technology elements envisaged from this launch vehicle. The second developmental launch of ASLV (ASLV-D2) was carried out on 13 July 1988 after incorporating modifications based on the first flight. Though the liftoff of ASLV-D2 was smooth but after about 46 seconds, the vehicle failed due to excessive load build-up. On the basis of detailed flight data review, a realisation plan for ASLV-D3 has been evolved.

POLAR SATELLITE LAUNCH VEHICLE

Polar Satellite Launch Vehicle (PSLV) is being developed to achieve indigenous capability to launch remote sensing satellites into polar sun-synchronous orbits. The vehicle includes both solid and liquid propulsion stages to generate the required thrust and control capabilities to place 1,000 kg class satellites at normal observational altitudes of 1,000 km.

Department of Space has successfully conducted a full duration static test of battleship version of the second stage of PSLV on 21 March 1990. Battleship version of the stage is identical to the flight configuration except that tankage is made of stainless steel for repeated testing on ground. This is the largest liquid propulsion stage developed in the country. The second stage of PSLV is of 2.8 M dia and 11.5 M length. It uses 37.5 T of liquid propellants (unsymmetrical dimethyl hydrazine and nitrogen tetroxide). Present test has qualified the entire stage, built indigenously, including the propellant gimbal control system of the engine to meet PSLV second stage flight control requirements.

GEO-SYNCHRONOUS SATELLITE LAUNCH VEHICLE

Indigenous capability for the launch of INSAT-II class of spacecraft is planned to be achieved in the 1990s with development of Geo-Synchronous Launch Vehicle (GSLV). GSLV will be configured in such a way that technology elements and infrastructure derived through PSLV programme are maximally utilised.

SATELLITE TECHNOLOGY

SROSS SATELLITE

Stretched Rohini Satellite Series (SROSS) programme is directed towards supporting missions using 150 kg class satellites for space science, technology and applications studies. SROSS satellites are intended for launch using ASLVs. While the first satellite SROSS-1 aboard ASLV-1 was mainly intended to monitor the launch vehicle performance, the second satellite SROSS-2 incorporated an ISRO-DFVLR (West German Space Agency) payload for remote sensing with Monocular Electro Optic Stereo Scanner (MEOSS). However, SROSS-2 could not be put into orbit due to failure of ASLV-D2. SROSS-3 is scheduled to carry NPL-PRL aeronomy payload.

SPONSORED RESEARCH

ISRO initiated Sponsored Research Programme (RESPOND) in 1976 to establish a strong interaction between ISRO and academic institutions in the country to carry out research, developmental and educational activities of relevance to the Indian Space Programme. The programme is aimed at developing a large research base at academic institutions, manpower training, building infrastructure facilities and nurturing indigenous capability to support space research programme. Major activities identified under RESPOND are research and developmental activities in space science, space applications and space technology areas, establishment of space technology cells in major academic centres, support to education programmes, conferences, seminars, symposia, workshops, publication activities, etc. Since initiation RESPOND has supported as many as 250 research projects at 80 institutions including universities, IITs, national laboratories, regional engineering colleges and public sector industries. As many as 1,200 scientists and engineers are involved in ISRO supported projects at academic institutions all over the country.

SPACE-INDUSTRY PARTNERSHIP

As a policy, Indian Space Programme has been seeking an active participation of Indian industries to support execution of its various programmes. To forge this into a sustaining relationship for mutual benefit and growth, a two-way partnership between ISRO and Indian industry has been evolved. These linkages involve transfer of advanced technologies developed by ISRO to industry and provision of technological consultancy from Space Programme to industry on the one hand, and utilisation of industry's own technological potential and expertise by Space Programme on the other.

ISRO's technology transfer scheme promotes and supports commecialisation of technologies developed by ISRO for applications in various fields. Major purposes of this scheme are: (1) meeting requirements of space programmes and projects through buy-back of products produced by industry as a result of technology transfer; (2) servicing rapidly expanding space applications markets in India generated by space programme in satellite communications, TV and radio broadcasting, meteorological services, remote sensing for natural resources survey and management, and (3) exploiting full potential of indigenous technologies developed by ISRO for multifarious spin-off applications. About 150 distinct technologies have been licensed by ISRO and National Remote Sensing Agency (NRSA). ISRO's technological consultancy scheme launched in 1982 has evoked good response from industry as well as other organisations. Indian industry's direct role in participating in the projects has shown continuing growth both in terms of technological complexity and quantum of work.

SPACE CENTRES AND UNITS

Research and development activities under Indian Space Programme are carried out at various centres/all units of ISRO/DOS. The major projects are executed by identified lead centres depending upon technology base established in them. A close coordination is maintained between the project core team in the lead centre and other work centres.

VIKRAM SARABHAI SPACE CENTRE

Vikram Sarabhai Space Centre (VSSC) is located at Thumba in Trivandrum. It has establishments at Valiamala for major facilities of PSLV project and at Vattiyoorkavu for development of composites. Ammonium perchlorate experiment plant is located at Alwaye. VSSC is the largest ISRO centre. It provides technology base for the country's indigenous satellite launch vehicle development efforts. The Centre is also responsible for development of several spacecraft sub-systems. VSSC is the lead centre for major projects such as ASLV, PSLV and GSLV. Supporting these projects are specialised R and D groups in avionics and mission dynamics, solid propulsion, propellants and chemicals, materials and mechanical systems, integrated launch vehicle programmes, systems reliability and programme planning and management. It has the infrastructure needed to support launch vehicle development programmes. VSSC also supports Rohini Sounding Rocket (RSR) programme. Thumba Equatorial Rocket Launching Station (TERLS) of ISRO Range Complex (IREX) and Space Physics Laboratory (SPL) are also located in VSSC.

ISRO SATELLITE CENTRE

ISRO Satellite Centre (ISAC) at Bangalore is the lead centre for satellite projects of ISRO. The Centre is responsible for design, fabrication, testing and management of satellite systems for scientific, technological and application missions. Spacecraft electronics group, mechanical systems group, attitude and orbit control systems group, mission planning and development group and technical support services group are the major groups in the Centre. *Aryabhata*, *Bhaskara*, APPLE and IRS-1A satellites were built here. At present IRS-1B and 1C, SROSS and INSAT-II TS satellites are being built.

ISRO is planning an aeronautical satellite communication demonstration using INMARSAT space segment in the early 1990s. This is a new field of service being conceived for the purpose of providing data in voice communication between aircraft and ground.

SHAR CENTRE

SHAR Centre is located in Sriharikota island on east coast of Andhra Pradesh. It is the main launch base for launching satellite launch vehicles and sounding rockets. ISRO Range Complex headquarters and the country's largest Solid Propellant Space Booster Plant (SPROB) are located here. The Centre also has Static Test and Evaluation Complex (STEX) and computerised data processing facilities to support indigenous launch vehicle development and missions.

LIQUID PROPULSION SYSTEMS CENTRE

The Centre has its establishment facilities at Bangalore and Trivandrum and test facilities at Mahendragiri (Tamil Nadu). It is responsible for development of liquid and cryogenic propulsion stages and auxiliary propulsion systems for both launch vehicles and satellites. The Centre also operates a precision transducer manufacturing facility at Bangalore.

SPACE APPLICATIONS CENTRE

This Centre at Ahmadabad is ISRO's R and D centre for space applications. Primary responsibilities are to conceptualise plan and execute projects and research programmes leading to practical use of space technology. Main activities are: satellite-based telecommunications and TV and remote sensing for natural resources survey and management, enviornmental monitoring, meteorology and geodesy. The Centre is organised functionally into Satellite Communications Area, Remote Sensing Area and Microwave Remote Sensing Programme. Support services are provided by technical services group consisting of enviornmental test facilities, electronics and mechanical fabrication facilities and a reliability and quality assurance group. It also manages Delhi Earth station.

DEVELOPMENTAL AND EDUCATIONAL COMMUNICATION UNIT

Developmental and Educational Communication Unit (DECU) at Ahmadabad is involved in various areas of software research such as television programme production, policy studies and reseach in society-technology interaction, social science research studies and training of television programme personnel. Major tasks of DECU include: (a) Kheda communication project, (b) training of staff especially for Doordarshan, (c) social research especially related to communication and (d) policy and techno-economic studies related to applications of space technology.

ISRO TELEMETRY TRACKING AND COMMAND NETWORK

ISRO Telemetry, Tracking and Command Network (ISTRAC) with its headquarters at Bangalore, operates a network of ground stations to provide tracking, telemetry and command (TTC) support for launch vehicle and statellite missions of ISRO. Development and operation of interface, software packages and network stations for present and future missions are the responsibilities of ISTRAC. Integrated network of

ISTRAC comprises TTC stations at Sriharikota, Trivandrum, Bangalore, Lucknow and Car Nicobar in addition to a multi-mission Spacecraft Control Centre at Bangalore. The Unit has established an S-band receive only station in Mauritius to support IRS mission. ISTRAC also operates Satellite Tracking and Ranging Station (STARS) at Kavalur in Tamil Nadu.

NATIONAL REMOTE SENSING AGENCY

National Remote Sensing Agency (NRSA) at Hyderabad is an autonomous institution supported by Department of Space. The Agency has facilities for suveying, identifying, classifying and monitoring earth resources using aerial and satellite data. While its analysis, computation and interpetation facilities are in Hyderabad, satellite earth station is at Shadnagar near Hyderabad. This earth station has facilities to receive data from remote sensing satellites such as LANDSAT, NOAA, SPOT and IRS. NRSA also opeates Indian Institute of Remote Sensing (IIRS) at Dehra Dun. This is a premier remote sensing and aerial photo interpretation training centre in the country.

PHYSICAL RESEARCH LABORATORY

Physical Research Laboratory (PRL) at Ahmadabad is the premier national centre for research in space and allied sciences. It is an autonomous institution supported mainly by Department of Space. PRL is also entrusted with management of Udaipur Solar Observatory. Its main research programmes are in solar planetary physics, infrared astronomy, geocosmophysics, theoretical physics including climatology, plasma physics and laboratory astrophysics, archaeology and hydrology. PRL operates a field station at Thaltej for scientific programmes in astronomy, aeronomy and astrophysics. PRL's 1.2m reflecting IR telescope installed at Gurushikhar near Mount Abu is the largest of its kind in the country.

ELECTRONICS

Production of electronic equipment and components has come a long way since the days of radio receivers in 1940s. Electronics industry in India has grown with domestic demand as a result of import substitution efforts.

It is now recognised that for achieving successful thrust for modernisation and technology upgradation, substantial development of indigenous electronics industry is very essential. Electronics plays a catalytic role in increasing production and productivity in key sectors of economy like power, coal, oil, railways, communication and process industries. Keeping this in view, major policy initiatives were implemented to provide a significant boost to electronics during Seventh Five Year Plan. Concerted efforts launched by Government in matters like creation of capacity, fiscal aspects and import policy, have helped electronics industry in achieving growth rates of over 30 to 40 per cent during last five years. During this period, the industry has also diversified and a wide variety of products are now available both for consumer as well as professional applications. This growth has also helped in increasing employment. Production and the growth rates during last five years are shown in table 7.4.

TABLE 7.4 PRODUCTION AND GROWTH RATES

Year	Production (Rs crore)	Growth (Percentage)
1984-85	2,081	40.5
1985-86	2,880	38.5
1986-87	3,855	33 8
1987-88	5,285	37.1
1988-89	7,030	33 0
1989-90	9,210[1]	31 0

1. Anticipated.

STRATEGY FOR DEVELOPMENT

During the 70s electronics industry in the country derived its strength as a labour-intensive industry. Production volume was low as the industry was getting off the ground. Production techniques had large manual labour content. Dispersal of industry was given an important place in promotional policy framework and industrial capacities were approved based on estimated demand over the next five years. In growth and development of the industry, emphasis was placed on indigenisation and applications of electronics. While on one hand, this had enabled development of largely self-reliant consumer electronics industry (except from 1982 onwards when a policy decision was taken to introduce colour TV and resulted in import of CTV tubes and semiconductors required for assembly), it has generated enough demand of components to enable mass production using some degree of automation on the other hand.

In 1990-91 Rs 110 crore has been provided under plan projects of DOE. This includes Rs 35 crore for Semiconductor Complex Ltd. Project and Rs 14.5 crore for development of infrastructure facilities.

PRODUCTION BASE

Overall production base of electronics industry is very widely distributed. At present, there are over 2,500 units comprising 11 Central public sector units (with 26 manufacturing establishments), over 60 units in state public sector, over 400 units in organised private sector and more than 2,000 units in small scale sector. It is, however, noticed that main contribution to production (accounting for about 75 per cent of total output) comes from 300 major units of which over 100 units are in small scale sector. During the past few years contribution of public units in overall production of electronics is around 30 per cent, that of small scale sector is about 35-40 per cent and the remaining 30-35 per cent is contributed by units in organised private sector. Amongst high growth sectors have been the areas of consumer electronics, communication industry and electronic components industry. Total production of electronics during 1989 as worth Rs 8,300 crore as against Rs 6,300 crore in 1988, registering a growth of 31.7 per cent.

Production of consumer electronics items incresed from Rs 665 crore in 1984-85 to Rs 2,650 crore in 1988-89. Production in 1989-90 was likely to be worth Rs 3,300 crore. Thus, during last five years the industry is growing at a compound rate of 38 per cent. Production of B/W TV sets had already reached a level of 45 lakh numbers in 1988-89 with over 60 per cent as small size (36 cm) sets. Colour TV industry has achieved a production level of 15 lakh sets.

Growth trends in major consumer products is highlighted in table 7.5.

TABLE 7.5 PRODUCTION GROWTH OF CONSUMER ELECTRONICS

(Lakh number)

	Item	1987	1988	1989
1	B/W TV Sets	32	44	40
2	CTV Sets	11	13	12
3	Radio Receivers	80	80	80
4	Tape Recorders	30	35	40
5	Electronic Watches	11	15	35

In addition to these popular products, steps have been taken to promote establishment of integrated facilities for manufacture of VCRs/VCPs and microwave ovens.

In computer industry, compound growth in monetary terms during last five years was about 50 per cent. Indigenous production of computers and related items in 1989 increased to Rs 700 crore from a level of Rs 486 crore in 1988. Production of computers in 1984-85 was only Rs 95 crore. Majority of production is accounted by PCs, PC/XTs, PC/ATs and mini systems (based on 80386 microprocessors). Demand for computer peripherals like key-boards, monitors, dot matrix printers, floppy disk drives, plotters, line printers, etc., is now mostly being met through local production. The indigenous mainframe systems, Medha 930 is to roll out of ECIL factory shortly. Exports of computer software crossed Rs 150 crore in 1989 compared to Rs 100 crore in 1988, while it would be about Rs 280 crore in 1990-91.

In communication and broadcasting sector production increased from Rs 415 crore in 1985-86 to Rs 1,015 crore in 1988-89. Electronic Switching Systems Factory at Mankapur has started making substantial contribution. Many units approved for manufacture of EPAB, telephone instruments, etc., have gone into production.

The aerospace and defence sector achieved a production level of Rs 410 crore in 1988-89 compared to Rs 220 crore in 1985-86.

Production of industrial electronics increased from Rs 335 crore in

1984-85 to Rs 1,000 crore in 1988-89. Growth in the industrial electronics sector, where process control and power electronic equipment has the largest share, is linked with investments in large industrial and power complexes.

Total production of electronic components was worth Rs 1,125 crore in 1988-89 compared to Rs 440 crore in 1985-86. The thrust towards indigenisation in major areas like colour TV receivers, computers, telecommunication equipment coupled with high growth in production of B/W TV receivers has helped components industry in achieving a very high growth. Capacity utilisation in a number of units has significantly improved while several new units have started production. Relative import of components has started showing a declining trend This trend is likely to continue in the coming years due to large investments already made by components manufacturers. Total cumulative investment made in this sector during last five years was over Rs 1,000 crore.

EXPORTS

Along with increase in production, exports of electronics are also looking up. During 1989, total exports were worth Rs 775 crore compared to Rs 475 crore in 1988, registering a growth of 63.2 per cent. Export of software has received a special thrust. It increased from Rs 30 crore in 1985-86 to Rs 110 crore in 1988-89. Exports of hardware increased from Rs 374 crore in 1988 to Rs 618 crore in 1989, showing a growth of 65.2 per cent. Sizeable export of other items like PCs, peripherals, B/W picture tubes, B/W TV sets, colour picture tubes, etc., was achieved in 1988-89. To encourage exports, a separate Electronics and Software Promotion Council has also been set up. Major export markets for Indian electronics are the USA, USSR and Far Eastern countries.

Three software technology parks are being set up at Pune, Bhubaneshwar and Bangalore to promote small and medium software houses to engage in development and export of software. A National Software Centre has already been set up in Bangalore.

INVESTMENTS

Investments in various sectors of electronics are flowing steadily and a number of major projects in communication, components and computers have started production. Major products include: colour picture tubes, LSI devices, colour TV components, PCBs, EPABX, telephone instruments, transmission equipment, electronics switching systems, satellite ground communication equipment, TV and radio broadcast equipment, microprocessor-based systems, super-mini and mainframe systems, computer peripherals, etc.

POLICY MEASURES

Amongst significant measures taken by government during last few years, the most important step was Integrated Policy Measures on Electronics, announced in March 1985. Thrust of the Policy included: (i) exemption from Sections 21 and 22 of MRTP Act for specific electronic industries; (ii) delicensing of electronic components industry; (iii) broadbanding provisions: (iv) fixation of minimum viable capacities, etc; (v) private sector participation for manufacture of certain communication equipment, and (vi) encouragement to small scale industry and decentralisation of approvals for a number of items to the level of state DIs.

Fiscal policies were also evolved to support growth-oriented policy for development of electronics. In this respect, the package announced in June 1986 is significant. By this, duty structure of electronics was rationalised (30 per cent on materials, 45 per cent on parts and 75 per cent on components) in such a way that it will become attractive for manufacturers to do backward integration.

It was also decided to discourage SKD imports. For this purpose, entry in the import policy relating to sub-assembly was transferred to the restricted list.

EIGHTH PLAN

During Eighth Five Year Plan, electronics industry is projected to grow over 25-30 per cent with emphasis on achieving the economies of scale, higher value added and reduction in import content in various products By 1994-95, gross output of electronics is estimated to reach a level of Rs 30,000 crore. In order to accelerate indigenisation process, components industry is being given higher priority. It is visualised that due to improvement in quality, cost reduction due to economy of scale and increased production volume, sufficient surplus will be generated for exports. Further, through careful re-orientation of export strategy, higher levels of export are likely to be achieved during the Plan period. Electronics exports have been targetted at Rs 6,300 crore by 1994-95 Total import requirements during this period would be worth about Rs 6,350 crore.

TECHNOLOGY DEVELOPMENT

Between 1973 and 1987, Department of Electronics has spent over Rs 63.5 crore involving 400 projects in the area of technology development. These projects have been assigned to over 100 organisations involving R and D laboratories (over 100 projects), educational institutions (about 200 projects) and public sector industrial units (about 100 projects). About 275 projects have already been completed. For 50 projects in R and D laboratories and academic institutions, knowhow has been transferred to production agencies. Many of the projects sponsored in industrial units have gone into production of electronic systems incorporating latest technologies, while the others have helped to build R and D culture and specialist manpower in electronics.

Government has decided to establish four electronic research and development centres (ER and DCs) at Calcutta, Lucknow, Mohali and Pune to undertake application-oriented region-specific research, design and development in the state-of-the-art electronics technology including its rural applications. They will promote growth of electronics industries in the country by providing R and D support to industries in the region, small scale industries in particular. The four ER and DCs will be autonomous registered scientific societies and will be jointly and equally financed by Department of Electronics and respective state electronics development corporations. Administrative control of ER and DCs will vest with Department of Electronics.

CENTRE FOR DEVELOPMENT OF TELEMATICS (C-DoT)

The C-DoT was set up in August 1984 with the objective of developing a state-of-the-art digital switching system (DSS) suitable for Indian environment with capability for future introduction of ISDN. The family of DSS includes private automatic branch exchange (PABX), rural automatic exchange (RAX), main automatic exchange (MAX) and trunk automatic exchange (TAX) which are in a variety of configurations from 128 to 40,000 ports. Design and development of PABX and RAX versions of terminal module of C-DoT main switch has been completed. RAX is a self-contained system meant for rural areas and was put on field trial in Kittur in Karnataka during July 1986.

TESTING FACILITIES

Department of Electronics has launched a standardisation, testing and quality control (STQC) programme. Under the programme, a countrywide integrated network of testing and calibration, three-I Echelon structure with electronics test and development centres (ETDCs) working as per Echelon-III level, electronics regional test laboratories (ERTLs) working as per Echelon-II level and primary calibration facility at National Physical Laboratory (NPL), New Delhi operating as per Echelon-Level, have been in operation. National measurement assurance programme is also being organised for electronic discipline that would ensure compatibility and traceability in measurements from industry level to national level and ultimately to international level.

At present 15 ETDCs are functioning in various states generally in the proximity of a cluster of small and medium scale industries. Four ERTLs are located in Delhi, Bombay, Calcutta and Bangalore to cater to requirements in the respective regions.

About 55 manufacturers of colour television have been approved under the limited approval scheme in pursuance of industrial licence policy for colour television receivers. Specifications for personal computer system comprising 8-bit personal computer, colour video monitors, floppy disc drive, keyboard and printer. etc., have been finalised with active involvement of industry and based upon actual testing wherever applicable. A certification scheme for personal computer, associated peripherals and dedicated components has also been finalised.

India has been admitted as a member under IEC-QA system and all four ERTLs have been enrolled as members of Exchange of Authenticated Electronic Components Performance Test Data (EXACT) Organisation. This has resulted in exchange of data on test report of international products/components, tested by leading international manufacturers' organisations.

GEOGRAPHICAL SPREAD OF THE INDUSTRY

From· the situation where a few years ago, electronics industry was essentially concentrated in a few places in the country (Pune-Bombay belt, Bangalore, Hyderabad and surroundings of Delhi), it has now come to be widely disbursed throughout the country. While in 1971, Maharashtra and Karnataka accounted for 76 per cent of the production of electronic goods and remaining states only 24 per cent, in 1985 the share of states increased to 65 per cent. Over 15 states have set up electronics development corporations for promotion and development of electronics. Most of states are now providing special incentives like exemption of sales tax, creation of separate industrial areas for electronics, subsidy for setting up units in backward areas, financial participation either as joint sector or assisted sector, etc., to encourage speedy development of this industry.

MANPOWER DEVELOPMENT

Highly specialised and trained manpower and a continuous updating of this manpower stock are of crucial importance for growth of electronics. The industry offered direct employment to about three lakh persons in 1989-90 as against 2.60 lakh in 1988-89. In addition, 2.5 lakh persons were provided indirect employment.

A large number of new institutions in formal education system have been inducted into computer curricula jointly with University Grants Commission/Ministry of Human Resource Development/Directorate General of Employment and Training and state governments for developing special manpower for computers. In addition, a number of schemes like faculty development programmes, continuing education programme, instruction material development, etc., are being implemented. Five new courses, namely, Master of Computer Applications (MCA), Diploma in Computer Applications (DCA), Diploma in Computer Engineering (DCE) and Certificate Courses for Training of Programme Assistants and Data Entry Operators have been introduced, besides conventional courses like B. Tech. and M. Tech. in computer sciences and technology. By now, Department of Electronics has supported about 300 such course units at various educational institutions.

A new scheme 'DoE Fellowship for Ph.D. in Computer Science and Technology' has been launched to motivate bright young students to take up research studies in computers. Other specialised training courses include: (i) service technician programme for common products like TV sets, tape-recorders, radios, VCRs, etc.; (ii) teachers' training programme for reorientation/retraining of teachers teaching electronics subjects at various ITIs/polytechnics; (iii) upgradation of course material in electronics for polytechnic level students as well as teachers; (iv) educational aids for handicapped persons; (v) computer literacy and studies in schools, etc.

NATIONAL INFORMATICS CENTRE

National Informatics Centre (NIC) was set up in March 1977 to play a promotional role in creating appropriate information system in Government departments/ministries to catalyse decision-making in Government. The hub of NIC network so far has been large computer system CYBER CDC 170/730 acquired and installed in May 1980 with assistance of UNDP. The system is connected with 60 interactive terminals and 12 minicomputer terminals. NIC has regional facilities at Bombay, Madras and Calcutta. Comprehensive training of internal programming staff and of users of NIC facilities has been one of the important activities of NIC. About 1,000 users are presently availing of the services of NICNET, 75 per cent of these users belong to Central government offices and public sector organisations. Nearly 400 government and 300 non-government projects have been registered with NIC. Its host computer system has been operational round-the-clock with an average uptime of 98 per cent. It has successfully completed installation and commissioning of Master Earth Station, the hub of the satellite-based communication network.

Master Earth Station antenna was installed and tested with INTELSAT. Thereafter, installation of remote earth stations at Hyderabad, Madras, Bangalore, Trivandrum. Jaipur, Kavaratti, Bhubaneshwar, Calcutta and Guwahati was completed and connected with Delhi.

PUBLIC SECTOR UNDERTAKINGS

CMC LIMITED

CMC Ltd. provides a whole range of computer support services comprising hardware maintenance, installation and commissioning of system, computer centre service, systems consultancy, software development programmes and research and development. It provides hardware maintenance support to various equipment supplied by over 30 manufacturers. It coordinates implementation of project INDONET which is an integrated information management and distributing data processing facility spanning the entire country. Its consultancy and technical expertise includes applications like: computerisation of railway passenger reservation systems; economic load despatch management systems for electricity generating units: computerisation of banking operations; automatic message switching systems; ticketless trunk exchange in telecommunications; computerised fingerprint identification systems for Central and state fingerprint bureaux; crime detection systems for police organisations; computer-based environmental monitoring systems, etc.

ELECTRONICS TRADE AND TECHNOLOGY DEVELOPMENT CORPORATION

Electronics Trade and Technology Development Corporation (ET and T) was set up with objectives of expanding foreign trade in electronics and undertaking development of technology in key areas. In addition, it is responsible for monitoring the requirement of industry and buying in bulk to provide large measure of support to electronics industry in its growth.

The Corporation has taken up a new innovative programme of self-reliance known as MTB programme with the objective of providing substantial assistance to small scale production units to manufacture cost-effective products of contemporary design and conforming to high quality standards. Under the programme, 14 inch black and white TV sets are being manufactured by about 50 units in the country. *Margdarshan Programme* taken up by ET and T provides software package in the form of educational video tapes for community development, like fundamentals of electricity, safety in electrical work, safety from fire hazards, colour TV, cobbling and film on antenna, etc.

SEMICONDUCTOR COMPLEX LIMITED

Semiconductor Complex Ltd. (SCL) was set up with an objective to design, develop and manufacture LSI/VLSI circuits, modules and sub-systems for telecommunication, data-processing, consumer electronics and for defence/ strategic applications. It commenced commercial production in April 1984. It has been able to develop three micron CMOs technology and has productionised clock LSI devices. With this the die yield of clock device has been improved to 2,000 dies on a four inch milicon wafer against an average of 800 in five micron CMOs technology. Two clock devices with alarm facility have also been productionised to meet the requirment of clock movement manufactures. In addition, SCL has started wafer processing of R 6502 8-bit microprocessor, R 6522 versatile interface adapter for R 6532 RIOTLSI devices.

Production of codec LSI devices has been initiated . They are used in electronic exchanges and telecom equipment.

Under modules and sub-systems, SCL manufactures electronic circuit blocks for clocks and analog watches, module for digital electronic watches and Unicom 8-bit module micro-computer. In clock ECBs, they have been able to produce all components except capacitors indigenously and are manufacturing 15 types of clock ECBs for supplying to various clock movement manufactures. SCL has set up a facility for assembly of QAB-ECB from component level.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Council of Scientific and Industrial Rsearch (CSIR) constituted in 1942 by a resolution of the then Central Legislative Assembly, is an autonomous body registered under the Registration of Societies Act, 1860. Functions assigned to the Council are: (1) promotion, guidance and coordination of scientific and industrial research in India, including the institution and financing of specific researches; (2) establishment or development of and assistance to special institutions or departments of existing institutions for scientific study of problems affecting particular industries and trades; (3) establishment and award of research studentships and fellowships; (4) utilisation of the results of researches conducted under the auspices of the Council towards development of industries; (5) establishment,maintenance and management of laboratories, workshops, institutes and organisations to further scientific and industrial research and to utilise and exploit for purposes of experiment or otherwise any discovery or invention likely to be of use to Indian industries; (6) collection and dissemination of information in regard not only to research but also to industrial matters generally; (7) publication of scientific papers and journals, and (8) any other activity or activities to promote generally the objects of the resolution.

CSIR today is an integrated network of 39 research laboratories/institutes and two research associations with over 100 regional centres spread all over the country. It carries out research of value not only to industry but also to other sectors of economy such as agriculture, irrigation, health, mining, power utilities, transport and defence, besides basic research.

Its expertise and experience is embodied in over 5,000 highly qualified scientists and technologists supported by an additional 13,000 skilled scientific and technical back-up personnel.

ASSISTANCE TO INDUSTRY

The inter-disciplinary expertise generated over the years by CSIR helps industry in various ways. Some of them are: (i) assessment of technology options, including technology assessment and choice of technology; (ii) absorption, adaptation and updating of imported technology; (iii) identification of areas of R and D that will maximise returns including R and D project definition, planning and programming; (iv) productivity improvements through cost reduction, energy conservation and waste utilisation; (v) substitution of imported raw materials, components and processes; (vi) pollution and effluents control, including location of safe discharge points; (vii) repair and maintenance; (viii) trouble shooting, condition monitoring and maintenance scheduling, computer simulation and modelling; (ix) optimisation of construction cost through application of novel technological designs; (x) analysis, interpretation and validation of test results and data; (xi) laying down of standards and test protocols and quality assurance; (xii) survey of literature and state-of-art reports, and (xiii) feasibility studies and project reports and analysis.

ACHIEVEMENTS

Some significant achievements of CSIR are as follows: CSIR undertook a programme on a Holological Approach to Water Mission in Barmer, East Sikkim and Nagpur districts. Scientific inputs were provided by NEERI, NGRI, CSMCRI, ITRC, SERC and NBRI as also Central and state government agencies, The assignment included hydro-geological investigations through remote sensing and geophysical surveys; treatability studies as basis for design of water purification systems; topography surveys as basis for engineering designs; development of software for dissemination of technology and community awareness programmes. Relevant data on social, economic and cultural indicators for assessment of pre-project conditions of environmental impact analysis have also been collected.

Inputs provided by CSIR laboratories towards fulfilment of Technology Mission on Oilseeds included an economical process for stabilisation of rice bran, design of a modern oil expeller, technology for decortication of sunflower seeds, design for storage of oilseeds and technology for processing of palm oil. Trials with improved oil expeller have proved that by using this expeller, efficiency and productivity of extraction of oil would increase.

Laboratories of Physical Sciences Group have been concerned with programmes relating to standards, radio and space physics, electronic devices and systems, oceanography and geophysics. A laser heterodyne system has been set up at NPL; CEERI has developed micro-processor based process control systems and a component for electronic power control systems. It has also developed hybrid micro circuits for INSAT-II. A 4 Me V linear accelerator machine has been developed by CSIO. Magnetic and electronic resistivity surveys were made by NGRI for locating targets of archaeological interest in Andhra Pradesh. On behalf of ONGC, NIO collected precision gravity data in the Bombay High and adjoininig areas for locating oil bearing strata.

New developments have been noticed in chemicals, chemical engineering and metallurgy.A new route has been developed by NCL for production of a carbamate pesticide. A new anode for cathodic protection has been developed by CECRI, without the use of mercury. Process flow-sheet for recovery of copper, nickel and cobalt from polymetallic nodules has been prepared by NML.

An improved strain of lemongrass and development of a high-yielding variety of mentha citrata are two of the notable achievements in agro-technology. CLRI has discovered a microbial enzyme for unhairing of hides and skins. Large scale trials of unhairing in commercial tanneries using this enzyme have been planned. NCL has succeeded in isolating from the desert sands of Rajasthan a unique strain secreting an enzyme capable of selectively degrading hemi-cellulose. This discovery is hailed as a breakthrough for paper industry. The enzyme is undergoing joint evaluation by NCL, Iowa State University and International Paper Company, USA.

Important programmes in the area of coal relate to techniques of extraction under difficult ground conditions, utilisation of mine wastes and an integrated approach to improvement of mine environment (also known as MMAHA Mines, Metals and Habitat). NEERI carried out several environment impact assessment studies for ONGC, petro-chemical industries and paper mills.

Materials—building materials and composite materials—continue to be an area of thrust in CSIR laboratories. NPL has developed flexible graphite foil using totally indigenous raw materials. This material offers outstanding resistance to corrosion at high temperatures and can retain compressibility at all temperatures. It has been found to be an excellent substitute for asbestos. A carbon fibre rudder for Dornier aircraft jointly developed by NAL and DFVLR, has successfully passed ground tests. CGCRI in collaboration with CMRS and CSIO, has successfully installed an optical fibre telephone system in a coal mine near Dhanbad. An energy-efficient gypsum calcinator has been developed by CBRI. Based on this knowhow, four calcinators are in commercial use.

SERC(G) undertook instrumentation of Narora Atomic power project containment Vessel-1 and asessed its structural behaviour during pressure tests. Computer software was developed by: (i) RRL, Jorhat and CLRI for simulation of flow type and pressure drop in a network of oil pipelines; (ii) SERC (M) for alignment of propulsion shafts in ships and submarines, and (iii) NAL for managing and analysing wind tunnel data on aircraft configurations. CSIR Centre for Mathematical Modelling and Computer Simulation (C-MMACS) was inaugurated in March 1988.

In basic research, significant developments have been reported in superconductivity (NPL, CEERI), cellular and molecular biology (CCMB), catalysis (NCL, IIP) and toxicity studies (ITRC). Among the national facilities created are: (a) CNC Milling Machine facility bv CSIO and (b) a new transonic wind tunnel with test section size of 0.6 m x 0.6 m by NAL. CSIR has entered into memorandum of understanding with ONGC, Central Board for Water Pollution, DRDO and Departments of Biotechnology and Non-Conventional Energy Sources of Government, for various programmes.

OCEAN DEVELOPMENT

For centuries people of India have been using the seas around the Indian sub-continent for transport, communication and food. During the last few years, exploration and exploitation of living and non-living resources of the seas have acquired a new thrust. The new 'Ocean Regime' established by United Nations Convention on the Law of the Sea, 1982, which has been signed by 159 countries including India and ratified by 42 countries besides United Nations Council for Namibia, as on 25 November 1989, assigns much of the world ocean to exclusive economic zones where coastal states have jurisdiction over exploration and exploitation of resources and for other economic purposes.

Recognising the importance of the oceans in economic development and progress of the nation, Government set up Department of Ocean Development in July 1981 for planning and coordinating oceanographic survey, research and development, management of ocean resources, development of manpower and marine technology. The Department is entrusted with the responsibility for protection of marine environment on the high seas.

Proposed allocation for various schemes for ocean development during 1990-91, is Rs 35 crore under Plan and Rs 8.16 crore under non-Plan.

OBJECTIVES

Broad objectives of ocean development have been laid down by Parliament in Ocean Policy Statement of November 1982. Domain of concern for development of oceanic resources and its environment extends from coastal lands and islands to the wide Indian Ocean. Main objectives are: (i) to map the morphology and structure of seabed and ocean floor and underlying geological features; (ii) to harness and manage its resources (materials, energy and biomass); (iii) to cope with and protect its environment (weather, waves and coastal front); (iv) to develop human resources (knowledge, skill and expertise), and (v) to play our rightful role in marine science and technology in the international arena.

Thrust areas in the ocean sector have been promotion of surveys for living and non-living resources, harnessing of renewable sources of energy, exploration of polymetallic nodules from deep seabed and scientific investigations in Antarctica. Discussions are afoot to evolve a national project for development of drugs from the sea and a five-year project proposal is expected to be formulated shortly.

RESEARCH VESSELS

The Department has acquired two sophisticated oceanographic research vessels : ORV *Sagar Kanya* (June 1983) and FORV *Sagar Sampada* (November 1984). These vessels are among the most modern oceanographic research vessels with advanced facilities for working in the field of physical, chemical, biological, geological and geophysical oceanography and meteorology. Sagar Sampada is a multi-purpose vessel with long endurance and operational range capable of working in the 200 nautical mile exclusive economic zone of India and beyond and also in southern Indian Ocean up to 60°S latitude. Within a short span, the Department has made considerable progress and taken steps to enhance country's capabilities in ocean sciences and has provided inputs to several institutions in the country.

LIVING RESOURCES

India with a long maritime history of exploitation of living resources from the sea occupies the eighth position in the world in regard to the total annual catch of fish. As per the need-based demand projections fish requirements of India's population by 2000 AD are estimated to be 114 lakh tonnes. At present 56 per cent of the total annual catch of about 30 lakh tonnes of fish is harvested from the seas. India with an extensive coastline of nearly 6,000 km and a vast exclusive economic zone of over 20 lakh sq km exploits about 46 per cent of the total catch of living resources from the Indian Ocean. Potential annual fish catch from the sea is estimated to be about one crore tonnes.

Systematic survey and exploration of marine living resources of the exclusive economic zone of India is one of the major objectives. ORV Sagar Kanya and FORV Sagar Sampada are utilised for this purpose. Area of operation of these vessels covers the Arabian Sea, the Bay of Bengal and the Central Indian Ocean down to 20°S latitude.

Research vessel Sagar Kanya has completed 53 cruises. Multi-disciplinary studies have been carried out on board in various fields of oceanography in the exclusive economic zones. Extensive studies have been conducted on primary productivity and occurrence of zooplankton and phytoplankton, meteorology, air-sea interaction and ocean circulation. Fisheries and oceanographic research vessel Sagar Sampada has completed 63 cruises. It has carried out extensive studies on pelagic and demersal fishery resources in west and east coasts and also in the waters around Andaman Islands.

DEEP SEABED EXPLORATION

India's interest in the deep seabed resources, *i.e.*, manganese nodule deposits in the Indian Ocean started during the period of International Indian Ocean Expedition 1960-65. Collection of nodule samples from the Indian Ocean in January 1981 generated a lot of interest in scientific community. Based on available information and initial surveys the Central Indian Ocean Basin which appeared more promising was chosen as the target area for exploration. An area of about 40 lakh sq km was subjected to preliminary exploration using mainly free-fall samplers, spot photography and conventional echosounders. In addition, spade corers, Peterson grab and photosledge were also used. Further, nodules in bulk quantities were collected by drag dredges mainly for use in metallurgical investigations. Based on wide space surveys, the target area was reduced for further exploration. Close-spaced sampling and echosounding operations were carried out extensively to progressively reduce the area of interest. In addition to the research vessel *Gaveshani*, ORV Sagar Kanya and chartered vessels were employed to identify the most promising areas. This work involved more than 1,600 days of work at sea and corresponding amount of laboratory and data processing work on land.

As a result of a massive effort put in by India involving a sizeable expenditure, India was accorded 'Pioneer Investor' status in deep seabed exploration by the Third United National Conference on the Law of the Sea in 1982. India is the only developing country to acquire such a status. It shares this privilege with three developed countries-France USSR and Japan and four multi-national consortia.

Preparatory Commission for the International Seabed Authority, a United Nations body, registered India's claim for a deep seabed mining site in August 1987 and allotted a mine site of 1,50,000 sq km for further exploration and development in the Central Indian Ocean. This decision entitles India to explore and develop resources of the deep seabed, containing rich deposits of polymetallic nodules which are a source of important minerals like copper, cobalt, nickel and manganese.

Following the registration further research and development programmes were launched to establish techno-economic viability of deep seabed mining. Successful laboratory scale process developments for extraction of metals from deep seabed nodules were carried out at National Metallurgical Laboratory (Jamshedpur), Regional Research Laboratory (Bhubaneshwar), Hindustan Zinc Limited (Udaipur) and Hindustan Copper Limited (Khetri). Steps to take these processes to a pilot plant scale typically consisting of about 250 kg nodules per day, were also taken.

HARNESSING OF WAVE ENERGY

The Department sponsored and assigned a research project on "Sientific Investigation on the Extraction of Wave Energy" to Indian Institute of Technology, Madras in 1982. First phase of the project was completed in the middle of 1987. After extensive studies work was initiated on establishment of a wave energy device at Vizhinjam near Trivandrum. On completion it is expected to produce 150 kw of energy.

CONTROL OF MARINE POLLUTION

Human activities on shore and at sea affect marine environment. India uses about 34,000 tonnes of pesticides and about 11,000 tonnes of synthetic detergents annually. It is estimated that 25 per cent of this volume finds its way to the sea. Annual discharge of domestic sewage into coastal waters is estimated at about five crore cubic metres. Present research and monitoring activities in marine environment include measures to protect coastal eco-systems against pollution effects. Two marine pollution centres-one at Bombay and the other at Calcutta–have been established to monitor marine pollution. Collection of data on pollution parameters (about 25 already identified) in these stations is being done by 15 agencies comprising National Institute of Oceanography and its regional centres, state pollution control boards, institutions like CESS, Fisheries College, Mangalore and Institute of Preventive Medicine, Hyderabad. In addition 120 monitoring locations along the coast of India have been identified for sampling.

DESALINATION PROGRAMME

Desalination programme sponsored and funded by Department of Ocean

Development during Seventh Five Year Plan period was implemented by Central Salt and Marine Chemicals Research Institute and Bharat Heavy Electricals Limited. As a result of research and development undertaken by Central Salt and Marine Chemicals Research Institute desalination technology using the process of reverse osmosis was standardised and made available to Bharat Heavy Electricals Limited for design and construction of plants for desalination of brackish water. The plant fabricated by BHEL offers simple and flexible method of purifying brackish water for drinking purposes. Besides the system also removes harmful matter and bacteria from brackish water. The energy saving in reverse osmosis, as compared to conventional thermal desalination system, also makes this process economically viable. Reverse osmosis systems are designed and fabricated in modular blocks, enabling erection and commissioning of the plant. Two pilot plants - one in Tamil Nadu and the other in Andhra Pradesh - were established for this purpose.

ANTARCTIC RESEARCH

India entered the field of Antarctic research in 1981 and since then, the Department has sent nine scientific expeditions to the continent. Purpose and objective of the Antarctic research is to identify and initiate studies and programmes which are of significance in scientific and economic terms and to establish infrastructural facilities and expertise which would enable India to sustain and expand its activities. Scientific programmes of Antarctic research include studies in meteorology, radio wave propagation, geology, geophysics, oceanography, marine biology, microbiology, upper atmosphere chemistry and glaciology, etc. Scientific work is carried out on voyages to and from Antarctica at the sites of mooring of the ship and permanently manned stations, *Dakshin Gangotri* and *Maitri*.

By virtue of its scientific activities in Antarctica, India was admitted as a Consultative Member of the Antarctic Treaty of 1959 in September 1983. India became a member of the Scientific Committee on Antarctic Research in October 1984. India also acceded to the Convention on the Conservation of Antarctic Marine Living Resources from 17 July 1985.

The first Indian expedition to Antarctica landed on the Antarctic continent on 9 January 1982. Indian team of 21 members from seven different institutions included oceanographers, meteorologists, biologists, geologists, geophysicists, radio communication experts and naval personnel. This expedition established a base camp named Dakshin Gangotri at Latitude 69° 59'23.12", South Langitude 11° 56'26.82" East. A meteorological station was also set up at the base camp to monitor weather.

Second Indian expedition to Antarctica with a team of 28 members from different organisations landed on Antarctica on 28 December 1982. Site location for a permanent station, continuation of scientific research activities initiated during the first expedition, establishment of communication links with India and reconnaissance of the areas around the base camp for future work, were its major accomplishments.

Third expedition with a team of 83 persons including two women scientists landed on Antarctica on 27 December 1983. A major achievement of this expedition was the establishment of a permanently manned station at Dakshin Gangotri for promoting year-round scientific research work. Specific scientific programmes of contemporary interest were also undertaken by a team of 16 scientists.

Fourth expedition (December 1984) had 83 members including one scientist from Mauritius. During this expedition, a direct high frequency communication link was established. A small station consisting of three cottages in the hills at a distance of about 70 km from Dakshin Gangotri station was built. Additional accommodation for laboratory space and garage for parking of snow vehicles and storage of equipment was added to the permanent station.

The 12-member first wintering team, left behind by the third expedition and staying in Antarctica throughout the winter, was relieved of its duties and brought back to India. A new team of 13 members was left behind for winter work. Fourth expedition also included a six-member team with requisite equipment and vehicles for undertaking reconnaissance work preparatory to a South Pole expedition later.

Fifth expedition to Antarctica with a team of 88 members landed on 24 December 1985. Scientific component of the expedition had 21 members including two women scientists drawn from 12 different institutions. Logistic component consisted of 67 persons from the three Services. It returned after 69 days' stay in the icy continent after accomplishing scientific and other objectives. The expedition brought back the second wintering team left behind by the fourth expedition. A 14-member new team of four scientific personnel and 10 from the Services was left behind to provide logistic support for work during winter.

Sixth Antarctic expedition landed on 21 December 1986. Scientific component of the team had 18 personnel for the summer and six for the winter work. Logistic support was provided by personnel from the three Services. Performance of a windmill for generation of energy was tested during this expedition

Seventh expedition to Antarctica returned to Goa on 26 March 1988 after spending 70 days on the continent and leaving behind a 15-member team. Among its major achievements were geological survey of over 1,000 sq km and collection of rock samples from the Humboldt Massif and Wohlthat mountain ranges and investigation of the ozone hole phenomena. Foundation for the second permanent station at Maitri was laid. A post office was inaugurated at Dakshin Gangotri on 26 January 1988.

Eighth expedition reached Antarctica on 24 December 1988. It included 100 personnel for varied research and logistic support. During this expedition a second permanent station Maitri-70 km away from Dakshin Gangotri was established to provide a base for front-ranking scientific research. Geological mapping in the Wohlthat region was undertaken. Samples for geophysical and geochemical studies were collected. Biological oceanographic and meteorological studies were conducted. Studies on ozone depletion were also made.

Ninth expedition with summer team and 42 members of the eighth expedition wintering team arrived at Marmugao on 27 March 1990, on way to the icy continent.

First Indian scientific expedition to Weddell sea (Antarctica) returned to Marmugao harbour, Goa in March 1990 on board the ice breaker MV POLARBJORN after undertaking reconnaissance work in Weddell sea area. The ninth Indian scientific expedition to Antarctica aboard the ship MV THULELAND was expected to reach Marmugao harbour, Goa on 27 March 1990. The expedition arrived at the harbour on the scheduled day.

The Department proposes to set up an Antarctic Study Centre with appropriate logistic base facilities in Goa. Plans for construction of the Centre are already afoot.

NATIONAL INSTITUTE OF OCEANOGRAPHY

National Institute of Oceanography was established in 1966 under Council of Scientific and Industrial Research, New Delhi. Main objective of the Institute is to develop adequate knowledge related to physical, chemical, biological, geological and engineering aspects of the seas around India through: (i) study of physical processes in the ocean including monsoon; (ii) exploration of living resources of the sea; (iii) sea farming technology; (iv) bioactive substances from marine plants and animals; (v) development of offshore oilfields; (vi) deep sea exploration for minerals; (vii) coastal zone and harbour development; (viii) studies for effective control of marine pollution; (ix) ocean modelling; (x) processing of satellite imagery data, and (xi) acoustic tomography.

In addition, the Institute is engaged in research and development projects for exploration and utilisation of natural resources of the sea. Its major achievements are: (i) demarcation of a primc area 3,00,000 km in the Central Indian Ocean for deep sea mining of polymetallic nodules and achieving distinctions of registering India as a 'Pioneer Investor' by United Nations and the first country to get mining rights; (ii) exploring offshore placer deposits in 13 bays along Konkan coast. These deposits mainly contain ilmenite, an important source of titanium and vanadium; (iii) identification of several marine plants and animals which show promising pharmaceutical properties like anti-fertility, depressant, toxic, analgic, anti-viral, spasmogenic, diuretic, etc; (iv) identification of pollutants like hydrocarbons, pesticides and heavy metals in the Arbaian Sea and Bay of Bengal and monitoring and control of pollution in Indian waters; (v) understanding various water masses, upwelling, thermal structure, circulation and monsoon; (vi) locating rich fishing grounds in the exclusive economic zone of India on the basis of biological and chemical studies; (vii) developing a technique for culturing green mussels on ropes from floating rafts, which has been demonstrated to fish farmers for commercial exploitation, and (viii) designing, fabrication and installation of several instruments like databouys, current meter, tide gauge, electronic bathythermograph, weather station, etc., for ocean research including unmanned weather station which was commissioned at Antarctica during first scientific expedition. The Institute manages research vessel ORV Sagar Kanya of Department of Ocean Development. Oceanographic data is maintained and managed by Data Centre of the Institute to cater to data and information needs of user community in marine field. An oceanographic *Atlas of EEZ of India* showing different parameters at different depths and cruise inventories of RV Gaveshani and ORV Sagar Kanya were brought out for effective utilisation of oceanographic data that was collected. The Institute publishes a quarterly research journal *Mahasagar* and a newsletter.

BIOTECHNOLOGY

Recent developments in genetic engineering, cell-fusion, cell culture, immunology, protein engineering, fermentation technology, etc., collectively called biotechnology have already demonstrated promising and beneficial application in various sectors including agriculture, animal husbandry, health, industry, energy and environment. To promote activities in these multi-disciplinary aspects of biotechnology, Government set up National Biotechnology Board in 1982 under Department of Science and Technology. Subsequently, in Fabruary 1986, the Board was replaced by a separate Department of Biotechnology. A Science Industry Consortium is proposed to be set up in the country, with a view to streamlining product and process development and improvement, related R and D aspects and training of manpower. It is likely to become operational by August-September 1990.

MANPOWER DEVELOPMENT PROGRAMME

To have adequate trained manpower, the Department evolved an integrated manpower development programme covering M.Sc./M.Tech./Post-doctoral teaching programme in biotechnology, integrated short term training courses, biotechnology associateship (national and overseas), visiting scientists from abroad programme, technical training programme and seminars/symposia.

INFRASTRUCTURE FACILITIES

Recognising the need for accelerated activity under biotechnology sector, scientists working in this area require access to certain facilities. For this a network of infrastructural facilities was set up in various scientific institutions and amongst groups of scientists working in different areas, *viz.*, microbial type culture collection, blue green algal collection, animal house facility, plant tissue culture repository, oligonucleotide synthesis, biochemical engineering research and process development, production, import and distribution of enzymes and biochemicals, plant tissue culture repository, etc.

UNIVERSAL IMMUNIZATION

Universal Immunization has been identified as a major thrust area and special emphasis has been laid on achieving immunization of all children in targetted age-group and pregnant women in a fixed time frame through a mission-oriented approach. Therefore a National Technology Mission on Immunization was launched in February 1986. One of the objectives of the mission is to promote, set up, undertake and monitor R and D activities in vaccinology with a view to developing new process technologies for new and improved vaccines and also to achieve self-sufficiency in essential vaccines. Two new units are being set up—one in Bulandshahr (UP) for R and D-cum-production of 10 crore doses of oral polio vaccine and the other in Gurgaon (Haryana) for R and D-cum-production of viral/vaccines–measels (2 crore doses), vero rabies (20 lakh doses), inactivated polio (5 core doses) and formulation of quadruple–DPTP (4 crore doses) vaccines. Two new companies, *viz.*, Bharat Immunologicals and Biological Corporation Ltd. (BIBCOL) and Indian Vaccines Corporation Ltd. (IVCOL) have been incorporated for implementation and management of oral polio vaccine unit and viral vaccines unit, respectively.

OIL PALM DEMONSTRATION PROJECT

Keeping in view the continued edible oils shortage in the country and continued large scale import of palm oil from abroad, the Department has launched Oil Palm Demonstration Project in Maharashtra, Andhra Pradesh and Karnataka to demonstrate the feasibility of oil palm cultivation under irrigated conditions over an area of 1,000 hectare in each of these states. Germinated seeds are kept in nurseries for about 10 14 months. Fruiting begins from 24-30 months after field planting.

TISSUE CULTURE CARDAMOM

While India produces around 4,000 metric tonnes of cardamon per year, our productivity is very low around 60 kg per hectare. Guatemala with a high productivity of around 250 kg per hectare has emerged as a serious competitor in international trade during the last six-seven years. However, several high-yielding selections with a yield potential of 300-650 kg per hectare are now available in the country. Large scale propagation of such selections would enhance production and productivity.

Cardamom being a cross-pollinated crop, seed progeny is not true-to-type. Although rhizome multiplication is common, it is slow and time consuming. Thus clonal multiplication of high-yielding selections can best be carried out through *in vitro* culture so that thousands of true-to-type plantlets can be regenerated in short time for large scale field planting.

Demonstration of the performance of tissue culture plantlets would be carried out over an area of 100 hectare throughout the cardamom growing areas of the country. The area would be divided into 100 units of one hectare each on farmers' land in Kerala (50 units), Karnataka (35 units) and Tamil Nadu (15 units).

EMBRYO TRANSFER TECHNOLOGY

Embryo Transfer Technology (ETT) offers scope for achieving faster multiplication of elite livestock and for devising methods for conservation of valuable germplasm. In conjunction with artificial insemination (AI) this technique offers a powerful tool to increase the population of the desired type of animal with improved production potential. Success has been achieved in establishing facilities for scientific study on the application of this technique in India through Science and Technology Mission mode project on cattle and buffalo herd improvement. Surgical and non-surgical transfers in cattle and buffalos have been successfully done. Biotechnological techniques associated with ET such as embryo preservation, *in vitro* fertilisation, embryo micro-manipulation, sexing, cloning and gene transfer have already shown promising results useful for field application in developed parts of the world especially in production of elite breeding stock. These techniques are also being studied under the project. Herds of elite cattle and buffalos developed under this project on a nationwide basis will be utilised for achieving the goals of Technology Mission for Dairy Development.

PRAWN PRODUCTION

The Department has initiated a programme to demonstrate semi-intensive prawn farming with *P.monodon* in Orissa. Marine Products Development Authority (MPDA) functions as the lead implementing agency. Technical knowhow of Hindustan Lever Limited has been made available for the project. It aims to achieve a level of production of eight tonnes per hectare a year in two successive crops.

FISH PRODUCTION

Transfer of desired genes into germline of an animal to produce transgenic animals has become a powerful tool to generate animals of economic importance. In general, fish are known to slow down somatic growth after sexual maturation. They channelise over 20 per cent of body energy for production of gamates and breeding activities. Hence attempts are being made to inject human or bovine growth hormone gene during developmental stages of fish so that its somatic growth phase can be prolonged. Attempts have also been made for cloning and expression of human growth hormone gene in *E.coli* so as to make available sufficient supply of human growth hormone. In India, National Institute of Immunology has been working on micro-injection in fish embryos using human growth hormone gene. Madurai Kamaraj University is using bovine and rat growth hormone genes. Under projects funded by the Department limited experiments in Zebra fish and Tilapia fish have shown that the DNA has been integrated with the germline of micro-injected fish embryos. Its manifestation, however, is poor. More trials are under way.

DBT has instituted a major project on Indian carps to demonstrate a production level of 25 tonnes per hectare per year with application of biotechnological methods including development of suitable hybrid strain with better feed conversion efficiency and further growth rate. Central Institute of Fresh Water Aquaculture at Bhubaneshwar will carry out the project.

NATIONAL INSTITUTE OF IMMUNOLOGY

National Institute of Immunology has been established to conduct research of a high calibre in both basic and applied immunology The Institute is conducting research mainly in these areas: (i) immunocontraception; (ii) development of vaccines against communicable diseases; (iii) development of immunodiagnostic kits, and (iv) cattle herd improvement through embryo biotechnology.

NATIONAL FACILITY FOR ANIMAL TISSUE AND CELL CULTURE

National Facility for Animal Tissue and Cell Culture has recently been set up as an autonomous institute under DBT. It receives, identifies, maintains, stores, grows and suplies: (i) animal and human cell lines of both existing (typed) and newly developed; (ii) tissues, organs and fertilised eggs and embryos; (iii) hybrid cells including hybridomas; (iv) unicellular obligate pathogens, parasites and vectors, and (v) plasmids, genes and genomic libraries.

Besides, the Institute is developing collaboration with other laboratories and industries for materials and reagents for cell tissue culture from indigenous sources. In addition to supplying, training programmes are also being conducted in cell tissue embryo culture, etc.

PRODUCTION OF BIOMASS USING TISSUE CULTURE TECHNOLOGY

Two pilot plant units have been set up at National Chemical Laboratory, Pune and Tata Energy Research Institute, New Delhi. Each pilot plant unit has been developed as a national facility with the main objective of carrying out large scale micropropagation and bulk multiplication of elite forest tree species using tissue culture techniques with production potential of lakhs of plantlets per year. Plantlets thus produced will be field-transplanted. Work has already been initiated on development and standardisation of protocols for *in vitro* regeneration. Simultaneously several R and D projects for application of tissue culture technique in biomass production have been identified and supported by the Department.

PROMOTION OF RESEARCH AND DEVELOPMENT

The Department has been supporting R and D programmes in various areas of biotechnology. While extending support, preference is given to those projects which indicate possibility of generating products or processes which can be commercially exploited. Notwithstanding this, however, the Department also supports projects in the area of basic research with a potential for practical applicability.

Some programmes under R and D being currently started by the Department and which would spill over into Eighth Five Year Plan period are: (i) scaleup studies on biohydrometallurgical processes related to copper leaching; (ii) recombinant insulin synthesis; (iii) cloning and expression of human insulin gene; (iv) development of improved strains of methane producing bacteria through genetic engineering; (v) increasing production and productivity of milch animals through application of embryo transfer technology; (vi) expression of growth hormone gene micro-injected into eggs of economically important fish; (vii) application of biotechnological methods for semi-intensive prawn farming; (viii) vermiculture bioconversion of solid residues; (ix) microbial production of 2, 3-Butanediol from water hyacinth; (x) cloning and expression of insecticidal crystal protein gene of bacillus thuringiensis, etc.

INTERNATIONAL COOPERATION

The Department has R and D collaboration programmes with the USSR, USA, FRG and Switzerland. Programmes with several other developed and developing countries are in the process of being formulated. International Centre for Genetic Engineering and Biotechnology, New Delhi has also been established with a view to focusing its research efforts in agriculture, human health and animal productivity.

DEPARTMENTAL RESEARCH

A number of Government departments carry out research in certain fields or the other. Some of them are:

MINES

Each of the organisations under Department of Mines carries out research and development activities related to their respective areas of operation. As a result, new methods of mining and improvements in quality of products and better recovery of by-products have been achieved in mining companies. Geological Survey of India carries out research both fundamental and applied in various branches of earth sciences *e.g.*, geochronology, stratigraphy, palaeontology, petrology, remote sensing, mineralogy, geochemistry, analytical chemistry and geophysics. It is also carrying out special investigations on geothermics, glaciology, seismology, etc.

Under Science and Technology programme, the Department sponsors research and development activities, conducted in its various organisations as well as in national R and D laboratories and educational institutions. These activities in mines sector cover areas of geology, exploration, mining, beneficiation and non-ferrous metallurgy. During 1988-89 outlay for Science and Technology programmes of the Department was Rs 14.25 crore. Important components of the programme during Seventh Plan included establishment of Jawaharlal Nehru Aluminium Research, Development and Design Centre at Nagpur, Indian Bureau of Mines Ore-Dressing Laboratory and Pilot Plant at Nagpur, Non-Ferrous Material Technology Development Centre at Hyderabad, Kolar Institute of Rock Mechanics and Ground Control, National Institute of Miners' Health and programmes for manpower training in various areas related to mining. Standing scientific advisory group of the Department controls and monitors progress of S and T activities. The group has identified thrust areas for technology development in the mines sector, which include selective flocculation, development of reagents for beneficiation, optimisation of flotation circuits and automation in concentrator plants, rock mechanics and ground control, bioleaching, technology development for nickel extraction, conceptual geological modelling in Singhbhum, geophysical logging techniques in exploration, etc.

AIR

Research Department of All India Radio undertakes studies in noise level in medium and high frequency bands for scientific planning of broadcasting services. It also investigates problems relating to maintenance and development of broadcasting in the country.

It caters to research needs of Doordarshan as well in the field. Activities of the Department are; (i) studies, investigations, research and development of sound and TV broadcasting networks in the country keeping in view latest and futuristic advancements in technology; (ii) design, development and prototype production of equipment where production by commercial firms is not cost-effective; (iii) provision of technical support to sound and TV broadcasting networks; (iv) evaluation of performance of equipment supplied by indigenous firms; (v) participation and expert advice on behalf of AIR and TV in national committees in formulating national policies/standards; (vi) participation and expert advice on behalf of AIR and TV in various international fora including International Telecommunications Union and its organs, broadcasting unions like Asia-Pacific Broadcasting Union (ABU), European Broadcasting Union (EBU), etc., to ensure that India's interests are safeguarded in international conferences.

During Seventh Plan, emphasis was laid on introduction of latest technology in the network. A number of studies and developmental activities were planned during the period. A centre for digital techniques in broadcasting is being established with UNDP assistance of US dollar 557,650. Government has provided Rs 59 lakh for the project.

TELECOMMUNICATIONS

Telecommunication Engineering Centre (TEC) formed after reorganisation of erstwhile Telecommunication Research Centre (TRC), continues to provide engineering support to Department of Telecommunications. TEC in its switching wing handles on-going modernisation projects of telegraph networks, biscriptual electronic teleprinter providing telematic services, computerised fault repair assistance system development, high speed PSTN access, pilot studies for premium data services and network planning and optimisation study projects. On tramsmission side, TEC is associated with various projects concening field trial, propagation studies, EMI/EMC studies and experiments, studies on land mobile satellite system and technical advice on INSAT system and inter-satellite system interference coordination.

RAILWAYS

Research, Designs and Standards Organisation of Ministry of Railways was created in 1957 by merging Central Standards Office and Railways Testing and Research Centre, Lucknow. It has now grown into a fully equipped research organisation, having experts from all disciplines of the Railways.

TEXTILES

Ahmadabad Textile Industry's Research Association, Ahmadabad, Bombay Textile Reseach Association, Bombay, South India Textile Research Association, Coimbatore and Northern India Textile Research Association, Ghaziabad were transfered to Ministry of Textiles from 1 April 1979 (then Department of Textiles in Ministry of Commerce) in order to ensure that research programmes reflect needs and viewpoints of user industry. Main objective of these institutions is to carry out research and render consultancy services to industry on various aspects of textile technology with a view to reducing cost and improving quality and durability of fabrics, reducing pollution, conserving energy and utilising waste, adopting new technology and improving technology in decentralised sector. Government assistance is provided to these research associations under an agreed formula. Research projects are sanctioned by Screening Committee which includes representatives of Planning Commission and Department of Science and Technology. Important research work has been carried out recently to improve fabric quality, pollution control measures, etc.

WATER RESOURCES

Central Water and Power Research Station, Pune, established in 1916, is the premier hydraulic research institution in India and recognised as the regional laboratory of United Nations Economic and Social Commission for Asia and Pacific in the area of waterways and water-borne transport. Central Soil and Materials Research Station, New Delhi, established in 1954, is conducting basic and applied research in geomechanics and construction materials, soil mechanics, foundation engineering, concrete technology and chemistry and sediment. National Institute of Hydrology, Roorkee, set up in 1978 as an autonomous society, is a premier national research organisation carrying out systematic scientific activities in basic, theoretical and applied hydrology. Central Board of Irrigation and Power, New Delhi works for promotion and coordination of research work in irrigation and power engineering.

8 Environment

POVERTY and under-development contribute to the problems faced in the field of environment in India. Increasing population and various developmental activities pose threat to the environment and urgent remedial measures are now required for restoring the environmental degradation and maintaining ecological balance. Environmental management is accepted as a major guiding factor for national development. Over the last decades there has been a progressive strengthening of official involvement in environmental management with increased scientific, technical, administrative and legislative back-up at the Centre and state levels.

Another class of environmental problems faced is the unintended side-effects of the very attempts at development. These are: mismanagement of natural resources, large scale deforestation, unplanned discharge of residues and wastes, handling of toxic chemicals, indiscriminate construction, expansion of settlement activities, etc. It is to this class of problems the tools and methodologies of environmental planning are primarily addressed. In the beginning of Fourth Plan, problems related to environment received Government's attention. A committee on environmental coordination was set up in 1972 to look into these problems and suggest solution in consultation with experts and concerned ministries/ departments of the Government. Another committee was set up in January 1980 for reviewing exhaustive legislative measures, administrative machinery for ensuring environmental promotion and for recommending ways to strengthen them. On the recommendation of this high-powered committee, Department of Environment was set up in 1980. Subsequently it was made a new Ministry of Environment, Forests and Wild Life in 1985 to serve as the focal point in administrative structure for planning, promotion and coordination of environmental programmes.

A high level committee has been set up to review the environmental policy especially with regard to the protection of tribal interest which forms an important item in Government's Action Plan. It will go into various issues pertaining to protection of rights and concessions enjoyed by tribals and how their conditions can be improved. This is to be done giving due attention to long run ecological sustainability and conservation of forests and bio-diversity. Among other things the committee is to review the existing measures for participation of tribals in forestry programmes and suggest steps to strengthen it. It will also review the tribal sub-plan and recommend measures for qualitative and quantitative improvement in implementing various programmes.

PROTECTION OF ENVIRONMENT

There are about 30 major enactments related to protection of environment now being administered by Central and state governments. Prominent among these are : the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Factories Act and the Insecticides Act. They are implemented through several organisations like Central and state pollution control boards, chief inspectors of factories and insecticides inspectors of agriculture departments. Despite this industrial accidents have led to widespread concern regarding danger to environment from hazardous substances. Existing laws to cover such hazards do not provide a clear focus of authority to prevent or limit damages. Taking into account, the Government has enacted the Environment (Protection) Act, 1986 to provide a single focus for environmental issues in the country and to plug loopholes in the existing Acts. This Act has been brought into force from 19 November 1986. Its salient features are– (a) conferring powers on Central government to: (i) take all necessary measures for protecting quality of environment; (ii) coordinate actions of states, officers and other authorities under this Act or under any other law related to the objects of this Act; (iii) plan and execute a nationwide programme for prevention, control and abatement of environmental pollution; (iv) lay down standards for discharge of environmental pollutants; (v) empower any person to enter, inspect, take samples and test; (vi) establish or recognise environmental laboratories; (vii) appoint or recognise government analysts; (viii) lay down standards for quality of environment; (ix) restrict areas in which any industries, operations or processes may not be carried out or shall be carried out subject to certain safeguards; (x) lay down safeguards for prevention of accidents and take remedial measures in case of such accidents; (xi) lay down procedures and safeguards for handling hazardous substances; (xii) constitute an authority or authorities for exercising powers; (xiii) issue directions to any person, officer or authority including the power to direct closure, prohibition or regulation of any industry, operation or process or stoppage or regulation of supply of electricity, water or any other service; (xiv) require any person, officer, state government or authority to furnish any prescribed information, and (xv) delegate powers to any officer of a state or authority; (b) it confers powers on persons to complain to courts regarding any violation of the provisions of the Act, after a notice of 60 days to prescribed authorities; (c) the Act makes it obligatory for the person incharge of a place to inform the prescribed authorities regarding any accidental discharge or apprehended discharge of any pollutant in excess of prescribed standards. Authorities, on receipt of such information or otherwise, shall take remedial measures to prevent or mitigate pollution caused by such accidents and expenses incurred by the authorities in respect of remedial measures are recoverable with interest from the polluter; (d) it prescribes stringent penalties for violation of the provisions of the Act. No distinction is shown between government departments and other companies, and (e) jurisdiction of civil courts is barred under the Act.

Government has taken several steps to provide legal and institutional basis for implementation of the Act. These include issue of rules, notification of standards, action regarding environmental laboratories, strengthening of state departments of environment and pollution control boards, delegation of powers, identification of agencies for carrying out various activities for hazardous chemical management and setting up of environment protection councils in states. The Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 have been made more stringent.

PREVENTION AND CONTROL OF WATER POLLUTION

Central Pollution Control Board (CPCB) is the national apex body for assessment, monitoring and control of water and air pollution. Executive responsibilities for enforcement of the Acts for prevention and control of pollution of water (1974) and air (1981) as also of the Water Cess Act (1977) are carried out through the Board and similar statutory boards established in the states under these Acts. Except Manipur, Nagaland, Sikkim, Arunachal Pradesh and Mizoram all states have constituted their boards. Central Board also looks after pollution control activities in union territories except Lakshadweep.

With enactment of the Environment (Protection) Act, 1986, major additional responsibilities have been placed on Central and state boards. Under the Act, effluent and emission standards in respect of 31 specific industries have been notified. General standards for discharge of effluents have been notified which are applicable to all types of effluents generated from industries including municipal sewage. This excludes industries for which standards have already been notified. So far 83 laboratories have been recognised as environmental laboratories. Minimal National Standards (MINAS) for pollution discharge from specific industries have been formulated and control measures are being implemented in a phased manner. River basin studies on Ganga-Yamuna, Damodar, Krishna, Brahmani-Baitarani, Subarnarekha and Sabarmati have been completed: Studies on nine rivers Kaveri, Godavari, Mahanadi, Mahi, Brahmaputra, Narmada, Tapti, Pennar and Indus are expected to be completed shortly.

CPCB in collaboration with Department of Ocean Development, has identified 173 monitoring stations along the Indian coast for water quality measurement with involvement of state pollution control boards. First round of sampling was done in October 1987. State boards have completed six rounds of coastal monitoring.

CPCB is also engaged in the study of existing surface water quality under the programme 'Monitoring of Indian National Aquatic Resources (MINAR) including stations of the Global Environmental Monitoring System (GEMS/Water). There are altogether 400 water quality monitoring stations. The Board has also a programme on monitoring of ambient air quality under National Ambient Air Quality Monitoring Programme. At present, 120 air quality monitoring stations are in operation.

CENTRAL GANGA AUTHORITY

Central Ganga Authority (CGA) was set up in 1985 to oversee implementation of the action plan drawn up for cleaning polluted stretches of the Ganga. A steering committee has identified different schemes to be taken up for Uttar Pradesh, Bihar and West Bengal through which the river runs. A committee has been set up to monitor progress of schemes and its impact on the river quality.

The action plan proposes to divert the sewage now flowing into the river to other locations for treatment and convert it into a valuable energy source. Schemes identified for this purpose include : renovation of existing trunk rivers and outfalls to prevent overflow of sewage into the Ganga; construction of interceptions to divert the flow of sewage and other liquid wastes into river, and renovation and construction of pumping stations and sewage treatment plants to recover maximum possible resources. Smaller schemes like construction of community toilets, conversion of dry toilets to flush toilets, construction of electric crematoria, development of river *ghats* and modernising solid waste management system, were also taken up to reduce domestic waste load on the Ganga. Pollution load on the river will be reduced by 75 per cent on completion of the schemes. Besides pollution abatement schemes for the Yamuna will commence in the second phase of the Ganga Action Plan.

CGA has taken up problems of industrial pollution load on the river. Sixty-eight gross industrial polluters have been identified and a time-bound programme for setting up effluent treatment plants has been initiated. Existing systems of water abstraction and utilisation are under review and measures to augment flows at critical points are being identified. Action plan has also provided a forum to protect fragile environment of the Gangotri-Gomukh region, the source of the river.

Two hundred and sixty two schemes have been sanctioned for execution with outlay of about Rs 279 crore. Of these, 89 schemes have already been completed. The rest are likely to be completed shortly while the long gestation schemes will spill over into Eighth Plan period.

Quality of the river water is being monitored in collaboration with Central Board for Prevention and Control of Water Pollution and state pollution control boards. Leading national laboratories, institutes and universities have been associated with different aspects of water quality, monitoring and study of physio-chemical characteristics of the river. A macro-level model for river quality has been developed and verified for the stretch of the river between Rishikesh and Patna. It will be used for simulating water quiality data. At micro-level, sampling and analysis of water quality is being carried out at 27 identified locations.

ENVIRONMENTAL IMPACT ASSESSMENT

Two major criteria, maximisation of economic returns and its technical feasibility, are no longer considered adequate to decide viability of project. It is now widely recognised that the development effort may produce not only sought-for benefits, but other undesirable consequences as well which may nullify socio-economic benefits for which the project is designed. It is, therefore, considered imperative that environmental issues are anticipated and incorporated in project at formulation stage itself for appropriate decisions on (i) siting of the project; (ii) choice of technology, and (iii) choice of preventive and control measures to minimise environmental damage. It is. essential both for optimisation of natural resources and achieving sustainable development.

IMPACT ASSESSMENT PROCEDURE

Impact assessment of development projects is carried out by the Department with the help of inter-ministerial appraisal committees comprising experts. Feasibility reports along with environmental management plan and environmental impact statement furnished by project authorities are scrutinised by these expert groups. Detailed guidelines and questionnaires indicating clearly the environmental issue are to be incorporated in different projects.

Projects approved by the Department often require implementation o suggested safeguards and mitigative measures. For this an effectiv monitoring mechanism is required. The Department and its associate agencies like Botanical Survey of India and Zoological Survey of India wit their network of regional stations provide all help to project authoritie during formulation, implementation and monitoring stages of the project

Approval of development projects has been streamlined by introducin the aspect of Single Window clearance. This implies that when a projec requires both environmental clearance and approval under the Fores (Conservation) Act, 1980, proposals are simultaneously processed. Decisions have been made time bound. All cases with complete environmenta data and action plans are decided within three months. In case of diversio of forest land, decision is taken within six weeks.

Implementation of projects requiring mitigative measures and safeguards need equally effective monitoring. Six regional centres have bee established at Shillong, Bhubaneshwar, Lucknow, Chandigarh, Bhopal an Bangalore for monitoring and timely implementation of safeguards s suggested.

RIVER VALLEY PROJECTS

Major environmental impacts of river valley projects which need consideration are: (i) degradation of catchment areas; (ii) command area development; (iii) rehabilitation of those affected; (iv) increased incidence o water-borne diseases; (v) reservoir induced seismicity, and (vi) deforestation and loss of flora and fauna including genepool reserves. Only 1,100 sq km of catchment area had been treated up to Fifth Plan against the estimated 15 lakh sq km area covering 59 major projects. Similarly command area development has more or less been the responsibility of the farmers who have neither technical knowhow nor financial capability to undertake necessary land levelling, grading and drainage operations to fully utilise irrigation potential.

Introduction of perennial irrigation results in increased incidence of water-borne diseases like malaria, filaria, schistosomiasis, etc. Preventive measures and health delivery system become all the more important in rural areas where this is introduced.

Most of river valley projects result in submergence of large tracts of forests, destroying flora and fauna and rich biological wealth. Genepool reserves in some of evergreen forests are threatened because of destruction which usually accompanies the submergence caused by such projects. The genepool reserves are critical for survival of human race as they provide not only necessary immunity against pests and diseases affecting the high-yielding cereals, vegetables and food crops but also develop new varieties.

MINING PROJECTS

Major environmental impacts of mining operations are: (i) degradation of land; (ii) pollution of surface and ground water resources; (iii) pollution of air; (iv) deforestation including loss of flora and fauna; (v) rehabilitation of affected population including tribals, and (vi) impact on historical monuments and religious places.

A major component of the mining operations in India is opencast which severely affects land use pattern. Mining operations have serious adverse impact on the growth of vegetation and general landscape.

Minerals extracted interact with surface and ground water and mine water, if acidic/toxic pollute water resources. Loss of top soil due to deforestation also depletes ground water resources and results in drying up of perennial sources like springs and streams especially in hill areas.

THERMAL POWER PROJECTS

Major environmental impacts of thermal power projects include: (a) air pollution; (b) water pollution; (c) deforestation; (d) rehabilitation, and (e) land degradation. Fuel gases emerging from stacks containing sulphur dioxide, oxides of nitrogen, carbon monoxide, etc., are detrimental to human beings and vegetation. Water pollution from thermal stations can be due to release of slurry which is a mixture of fly ash and water. Thermal pollution is due to release of cooling water which can affect aquatic life. Solution to disposal of ash problem is in its recycling by converting it into building blocks and its use in other construction works. Another step which helps in abating pollution caused by ash is stabilisation of ash dumps through suitable vegetation.

INDUSTRIAL PROJECTS

Major environmental impacts of industrial projects include : (a) air pollution; (b) water pollution, and (c) disposal and utilisation of solid waste. Impacts of projects in specific areas are examined in great detail and suitable control measures suggested. Linkages of project requirements to utilisation of resources in an optimal way is an essential prerequisite. Concept of recycling, reuse and adoption of clean technologies is increasingly becoming predominant.

COASTAL AREA MANAGEMENT

To protect cultural, aesthetic and ecological values in coastal areas, a directive has been issued to coastal states by Government banning construction activities within 500 metres of high tide line. This has been done to ensure that indiscriminate construction activities do not result in serious environmental impact in such areas.

As a statutory back-up to this directive and to provide a uniform approach in coastal management and protection, Government has initiated modalities for policy decisions for direction under the Environmental (Protection) Act, 1986. It has also constituted an expert committee to study effects of a low level radiation on people living in Quilon district and adjoining areas of Kerala.

FORMULATION OF ENVIRONMENTAL GUIDELINES AND QUESTIONNAIRES

APPRAISAL AND CLEARANCE OF DEVELOPMENT PROJECTS

Formulation of such guidelines and questionnaires aims at assisting project authorities in planning environmental impact assessment (EIA) and evolving environmental management plan (EMP) for developmental projects. Guidelines finalised and approved include: (i) rail/road/highway projects; (ii) airport projects; (iii) communication projects, and (iv) new towns.

Guidelines for tourism projects are being drawn up and would be available shortly. Other sectors in which guidelines have been taken up for revision and updating include: (i) river valley projects; (ii) mining projects; (iii) thermal power projects; (iv) industrial projects and (v) development of beaches.

ECO-REGENERATION AND DEVELOPMENT

National Eco-Development Board was set up in 1981 basically to demonstrate feasibility of economic development without ecological imbalance, planning and implementing programmes to arrest further damage to degraded eco-systems, undertaking programmes for their speedy restoration and sensitising youth on importance of conservation.

Eco-development task forces have been deployed for eco-restoration through afforestation and soil conservation sechemes. Eco-camps are organised with participation and involvement of people and voluntary agencies. Major field demonstration projects for eco-regeneration of degraded areas include those undertaken in catchment areas of Garur Ganga, Patal Ganga and Mainagad, Shivalik foothills (Hoshiarpur), Auroville (Pondicherry), Haldighati (Udaipur), Pushkar Valley (Ajmer) and Cherrapunji (Meghalaya).

Govind Ballabh Pant Institute of Himalayan Environment and Development is being developed as a decentralised network of seven centres of advanced studies to undertake action-oriented integrated research and development studies in the region.

BIOSPHERE RESERVES

A network of biosphere reserves is to be set up for long term protection and conservation of biological diversity. So far, seven such biosphere reserves have been established, *viz.*, Nilgiri Biosphere Reserve in Kerala, Karnataka and Tamil Nadu (1986), Nanda Devi in UP (1988) and Nokrek in Meghalaya (1988), Manas in Assam (1989), Sunderbans in West Bengal (1989), Gulf of Mannar in Tamil Nadu (1989) and Great Nicobar in Andaman and Nicobar Islands (1989). The Ministry being nodal agency for this programme, provides financial support for action plan and research.

WETLANDS

Considering importance of wetlands, measures have been initiated for their conservation and management. Public awareness is generated on the need for wetland conservation and their economic utility. Steps are being taken to commence scientific and application-oriented research study on their productivity.

So far 16 wetlands have been identified for preparation of management action plan. Nodal academic research institutions for each wetland have also been identified. The 16 wetlands are: Kolleru in Andhra Pradesh, Wullar in Jammu and Kashmir, Chilka in Orissa, Loktak in Manipur. Bhoj in Madhya Pradesh, Sambhar and Pichola in Rajasthan, Ashtamudi and Sasthamkotta in Kerala, Harike and Kanjali in Punjab, Ujni in Maharashtra, Renuka in Himachal Pradesh, Kabar in Bihar, Nalsarovar in Gujarat and Sukhna in Chandigarh.

MANGROVES

Mangroves are salt tolerant forest eco-systems found mainly in tropical and sub-tropical intertidal regions. Considering their importance, steps have been initiated to conserve them, educate the public on the need for their conservation and their economic utility, besides commencing scientific and application-oriented research on their productivity, flora, fauna, etc.

Fifteen such areas selected for preparation of management action plan are: northern Andaman and Nicobar, Sunderbans in West Bengal, Bhitarkanika in Orissa, Coringa Krishna Estuary and Godavari Delta in Andhra Pradesh, Mahanadi Delta in Orissa, Pichavaram and Point Calimere in Tamil Nadu, Goa, Gulf of Kuchchh in Gujarat, Coondapur in Karnataka, Achra Ratnagiri in Maharashtra and Vembanad in Kerala. The scheme has now been extended to cover all mangrove areas in the country.

NATURAL RESOURCE MANAGEMENT

National Natural Resource Management System has been established for an accurate and updated inventory of bio-resources such as land, water, forests, mineral resources, ocean, etc. The standing committee on bio-resources and environment, one of the committees established under the System, has formulated a detailed document on key issues. It has identified 37 projects for management of resources by integrating conventional services and remote sensing techniques. Of these, seven projects were sanctioned in 1987-88 and in 1988-89 in areas of mining, industrialisation, coastal environment and eco-development.

NATIONAL MISSION ON WASTELANDS DEVELOPMENT

National Wastelands Development Board (NWDB) was established in May 1985 with primary objective of undertaking wastelands development. NWDB seeks to achieve this through a massive programme of afforestation and tree planting with people's participation. First four years of Seventh Plan saw coverage of 71.6 lakh hectare of land under it.

Besides providing impetus to on-going programmes such as rural fuel wood plantations, operation soil watch, decentralised nurseries, etc., several new initiatives like seed development agencies, aerial seeding, margin money assistance to autonomous bodies/organisations, minor forest produce planting and fuel wood and fodder projects, were taken up in 1988-89.

A review of the activities of the Board showed that there is need for restructuring and strengthening the programme. Recognising this Government decided to raise wastelands development programme to the level of a technology mission and National Technology Mission on Wastelands Development was launched on 5 October 1989.

Main objective of the Mission is to: (a) check land degradation; (b) put wastelands to sustainable use; (c) regeneration of degraded forests; (d) green public lands; (e) promote farm forestry; (f) increase bio-mass availability specially fuel wood and fodder, and (g) restore ecological balance. Development of low cost technologies and involvement of people will be key elements of the new approach. Foremost task in this direction is to prepare detailed village level action plans for integrated management of wastelands through soil and moisture conservation, grass and tree cover, etc. Initially, this work has been started in selected districts. For this purpose, multi-disciplinary teams have been set up in each district under collector/deputy commissioner. The Mission proposes to cover 170 lakh hectare under the programme in Eighth Plan period.

Technology Mission for Wastelands Development is located in Ministry of Environment and Forests. Mission management is being guided by an empowered committee headed by Cabinet secretary. It has secretaries of the concerned Central departments, Adviser on Technology Missions and a representative of Prime Minister's Office, as its members.

WASTE MANAGEMENT

The Ministry has set up three sub-groups to work for effective utilisation of wastes in an environmental frame-work. These sub-groups are meant to identify the waste, suggest technological alternative for reduction, recycling and reuse of waste and to formulate action points as a basis for executive orders to be issued by Government including legislation, taxes and incentives. It has also been decided that new industrial units should ensure waste utilisation and this would be included in the licensing and consent conditions. Potential technologies for use of various industrial/agricultural wastes need to be developed and information regarding them should be made available to small units; a catalogue would help to bring the various associations together.

MANAGEMENT OF HAZARDOUS SUBSTANCES

The Ministry is the nodal agency for management and control of hazardous substances which include hazardous chemicals, wastes and micro organisms. Rules on hazardous chemicals and wastes prescribed under Section 3(20) (vi) and (vii) of the Environment (Protection) Act, 1986, are–(a) hazardous chemicals and wastes: (i) rules of manufacture, storage and import of hazardous chemicals: these provide for notification and listing of hazardous chemicals, identification and siting of hazardous establishments, taking preventive and control measures for any major accidents and control of import of hazardous chemicals; (ii) transportation of hazardous chemicals by road: these have been provided on the lines of Maharashtra Rules on transportation of hazardous chemicals and incorporated in the Motor Vehicle (Amendment) Rules, 1989; (iii) Hazardous Wastes (Management and Handling) Rules: these rules control generation, collection, separation, storage, transportation, treatment, recoverv and disposal of hazardous wastes. Import of hazardous wastes from other countries purely for dumping and disposal in our country has been totally banned; (b) hazardous micro-organisms: draft rules for manufacture, import, storage and use of hazardous micro-organisms/genetically engineered organisms have been prepared in collaboration with Department of Bio-Technology (DBT). DBT has constituted six Advisory Committees to draft safety guidelines and also suggest procedures for safety regulations; (c) accident management and coordination with state governments: a crisis management plan has been worked out to meet chemical emergencies in units handling hazardous chemicals. The plan provides a three-tier system *i.e.*, establishment of crisis groups at Central, state and district or local levels. A control room functions in the Ministry round the clock for coordinated action to deal with emergencies. Guidelines for preparation of crisis management plans have been issued to state governments and adequate financial support provided to them, (d) import of hazardous chemicals and wastes: as per the U.S Toxic Substances Control Act, the Ministry is being informed about chemicals banned or restricted for use in the USA and being imported to our country Necessary controls on import of hazardous chemicals and wastes have already been incorporated in the rules being notified by the Ministry. An UN Environment Programme-sponsored Convention on Control of Transboundary Movement of Hazardous Wastes has been unanimously adopted at Basel, Switzerland by 126 Governments. This Convention is an important development to halt the reported illegal traffic in hazardous wastes from developed countries to developing countries; (e) prohibition of use of hazardous chemicals: rules for prohibition on handling of hazardous chemicals have been notified under Section 6(ii)(d) of Environment (Protection) Act, 1986. A notification for prohibition on use of benzidine-based dyes and its salts has also been issued, and (f) information on chemicals: documented information on hazardous chemicals is being compiled. Documents on chlorofluorocarbons and asbestos have been compiled with information on the status of these chemicals in India.

FORESTS

Forests are a renewable source and contribute substantially to economic development. They have a major role in enhancing quality of environment. The country has an area of 752.9 lakh hectare notified as forests. Of this, 406.8 lakh hectare area is classified as reserved and 215.6 lakh hectare as protected. Unclassified forest area is spread over 131.1 lakh hectare. About 19 per cent of the total geographical area is under forest cover.

FOREST POLICY AND LAW

India is one of the few countries which has a forest policy since 1894. It was revised in 1952 and again in 1988. Main plank of the revised forest policy 1988 is protection, conservation and development of forests. Its aims are: (i) maintenance of environmental stability through preservation and restoration of ecological balance; (ii) conservation of natural heritage; (iii) check on soil erosion and denudation in catchment area of rivers, lakes and reservoirs; (iv) check on extension of sand dunes in desert areas of Rajasthan and along coastal tracts; (v) substantial increase in forest/tree cover through massive afforestation and social forestry programmes; (vi) steps to meet requirements of fuel wood, fodder, minor forest produce and soil timber of rural and tribal populations; (vii) increase in productivity of forests to meet national needs; (viii) encouragement of efficient utilisation of forest produce and optimum substitution of wood, and (ix) steps to create massive people's movement with involvement of women to achieve objectives and minimise pressure on existing forests.

Recognising urgent need to halt dangerous trends where forests have reached a stage of regression very near the irreversible threshold, the Department is giving a new orientation to entire gamut of forests-related activities. Some of the important areas for immediate effective protection of forests include afforestation and development of wastelands, reforestation and replantation in existing forests, forest settlement, restriction on grazing, encouragement for wood substitutes and supply of other kinds of fuel, elimination of forest contractors, discouragement of monoculture practices, etc.

FOREST CONSERVATION

Increasing destruction and degradation of forests and treelands especially in the Himalayas and other hill areas, is leading to heavy erosion of top soil, erratic rainfall and recrurring floods. It is also causing acute shortage of fire wood and, what is more important, loss of productivity due to eroded and degraded lands. The Forests (Conservation) Act, 1980, enacted primarily to check indiscriminate deforestation/diversion of forest lands for non-forestry purposes, was amended in 1988 to make it more stringent by prescribing punishment for violations. Rate of diversion came down to about 16,500 hectare a year after the enactment of this Act as compared to 1.5 lakh hectare per annum earlier.

Another area of concern has been degradation of forests due to biotic pressure. Guidelines have been framed for preparation of working plans and felling in forests. Some of the salient features are: (i) working plans should be up-to-date and stress conservation; (ii) preliminary working plan should have a multi-disciplinary approach; (iii) tribal rights and concessions should be highlighted along with control mechanisms, (iv) grazing should be studied in detail and specific prescriptions should cover fodder propagation; (v) shifting cultivation and encroachments need to be controlled; (vi) clear-felling with artifical regeneration should be avoided as far as possible and clear-felling blocks should not exceed 10 hectare in hills and 25 hectare area in plains, and (vii) banning all felling above 1,000-metre altitude for a few years should be considered to allow these areas to recover. Critical areas in hills and catchment areas, prone to landslips, erosion, etc., should be totally protected and quickly afforested.

Government has recently set up a National Forest Fund. Initially its funds will be used for unemployed youth, ex-servicemen, tribals, etc., for planting trees on users' lands.

FIRE WOOD

Fire wood occupies a predominant place as an energy source in rural areas.

As against estimated requirement of about 13.4 crore tonnes of fuel wood per annum, recorded production is only four crore tonnes. Due to scarcity of fire wood, considerable quantities of cowdung and agricultural residues are burnt as fuel.

FOREST FIRE CONTROL

A project aimed at the prevention, detection and suppression of forest fire has been launched with UNDP assistance. Ground fire suppression system including hand-tools, mechanised equipment and water-handling equipment, helicopters, etc., are used to suppress forest fires in project areas.

WILDLIFE

National wildlife action plan adopted in 1983 provides the framework of strategy as well as programme for wildlife conservation.

At present, protected area network comprises 69 national parks and 398 sanctuaries covering four per cent of the total geographical area of the country. It is proposed to be increased to 4.6 per cent by setting up more parks and sanctuaries.

The Wild Life (Protection) Act, 1972, adopted by all states except Jammu and Kashmir (which has its own Act), governs wild life conservation and protection of endangered species. The Act prohibits trade in rare and endangered species. India is also a signatory to the Convention on International Trade in Endangered Species of Wild Flora and Fauna. Under this, export or import of endangered species and their products is subject to strict control. Commercial exploitation of such species is prohibited. The Centre provides financial assistance to states for: (i) strengthening management and protection of infrastructure of national parks and sanctuaries; (ii) protection of wildlife and control of poaching and illegal trade in wildlife products; (iii) captive breeding programmes for endangered species of wildlife; (iv) wildlife education and interpretation; (v) development of selected zoos, and (vi) conservation of rhinos in Assam.

PROJECT TIGER

Project Tiger, a Centrally-sponsored scheme was launched in 1973 to save tiger. Presently, there are 18 tiger reserves in 13 states covering over 28,017 sq km. The estimated number of tigers in the country is 4,334. Other rare animals preserved in tiger rerserves include wild elephant, rhino, Indian bison (*gaur*), swamp deer, wild buffalo, black-duck, crocodile, *gharial*, python and a large number of birds. In 1989, 'eco-development programme' was initiated in buffer area of tiger reserves to solve problems of people living in and around the reserves.

PROJECT ELEPHANT

Successful implementation of Project Tiger has let the Department to undertake Project Elephant with a view to protecting elephant from extinction and large scale immigration. Main objectives of the Project are: (a) restoring migratory groups of elephants; (b) improvement of elephant habitats by suitable plantation; (c) erecting fence along forest border in areas where damage to crops by elephants is severe, and (d) trans-location of elephants to suitable and safer habitats.

RESEARCH PROMOTION

ENVIRONMENTAL RESEARCH PROGRAMME

The programme aims to develop strategies for sustainable resource management and create facilities and trained manpower to conduct environmental research. Major projects include: (a) integrated action-oriented eco-development research programmes in Western and Eastern Ghats, Himalayan region and the Ganga, and (b) all-India coordinated research projects on ethnobiology, air pollution and plants, conservation of endangered plant species (seed biology and tissue culture), wetlands and mangroves.

A number of smaller location-specific research projects have also been initiated. Two research committees, Indian National Man and Biosphere Committee and Environment Research Committee, make recommendations on priority areas for environmental research, scrutinise research proposals, evaluate progress and recommend suitable means for implementation of research projects.

On review of earlier research programmes and assessment of future requirements, areas of research have been identified in five fundamental elements, *viz.*, land, water, air, space and energy. Two basic approaches for such study are eco-systems management and ecological aspects.

To strengthen environmental research and training base 'Centres of Excellence' have been set up. Presently there are three such centres. The first centre at Indian Institute of Science, Bangalore deals with Western Ghats and air and water pollution. The second at Ahmadabad focuses on environmental education and is engaged in development of educational material. The third one is at Indian School of Mines, Dhanbad which is engaged in the study of mining environment.

FORESTRY RESEARCH

Forestry research is primary responsibility of Indian Council of Forestry Research and Education. It oversees various activities in forestry research and related education.

It has six forestry research institutes in different eco-geographical regions of the country. These are: (i) Forestry Research Institute, Dehra Dun; (ii) Institute of Arid Zone Forestry Research, Jodhpur; (iii) Institute of Deciduous Forests, Jabalpur; (iv) Institute of Wood Science and Technology, Bangalore; (v) Institute of Rain and Moist Deciduous Forests, Jorhat, and (vi) Institute of Forest Genetics and Tree Breeding, Coimbatore, conducting national level research on different aspects of forestry keeping regional needs into consideration.

WILDLIFE RESEARCH

Research programmes in wild life are carried out by Wildlife Institute of India. Research projects involving habitat evolution, elephant movement, ecology of gharials and turtles, status of endangered species, animal behaviour, animal health and other ecological status are under way in different parts.

EDUCATION, AWARENESS AND INFORMATION

Promotion of environmental education, training and awareness, is an essential prerequisite for environmental management. For this a number of steps have been taken to inculcate consciousness among all categories and age groups of the population. Special emphasis has been accorded to non-formal education through seminars/workshops, training programmes, eco-camps, multi-media campaigns, etc. A major national environmental awareness campaign was launched in July 1986. Since then it has become an annual feature.

To encourage and recognise excellence in every branch of research related to environmental science, the Department had instituted *Pitambar Pant National Environment Fellowship Award* in 1978. It has also instituted another national award entitled *Indira Gandhi Paryavaran Puraskar*. It is awarded annually to any citizen of India or organisation for significant contribution in the field of environment. The award is of the value of rupees one lakh started from 1987. Bombay Natural History Society received it for 1987.

National Museum of Natural History, set up in New Delhi in 1972, is concerned with study and interpretation of natural world in its various manifestations. It is responsible for promoting non-formal education in ecology, wildlife and environment. A natural history museum is to be set up in Mysore.

Education in forestry is being conducted in 14 agricultural universities with degree courses. Indian Institute of Forest Management, Bhopal started a two-year Post-graduate diploma course in 1988 to provide training to graduates on forestry management techniques.

Environmental Information System (ENVIS) set up in 1982, caters to information needs of policy makers, decision makers, research workers and general public. A national network of 10 ENVIS centres in specific subject areas like pollution control, toxic chemicals, coastal and offshore ecology, occupational health, energy and environment, upgradation of wastes, etc., in selected institutions, are functioning under the programme. More centres are likely to be set up to cover multi-disciplinary aspects of environment. ENVIS publishes a quarterly journal entitled *Paryavaran*

Abstracts which reports countrywide research inputs on environment. It acts as National Focal Point (NFP) as well as regional service centre (RSC) for South Asian sub-region of INFOTERRA (a global information network) of United Nations Environment Programme (UNEP). ENVIS also provides substantive information to both national and international queries on environment and related areas.

Earth Day is celebrated on 22 April every year. It aims at creating public awareness over the need for protecting environment and working for sustainable development so that our planet is safe for both the present and future generations.

INTERNATIONAL COOPERATION

The Ministry functions as nodal agency for UNEP, South Asia Cooperative Environment Programme (SACEP) and International Centre for Integrated Mountains and Development (ICMOD). It is also the nodal point for interaction with various international agencies, regional bodies and multilateral institutions. It coordinates all bilateral cooperation in the field of environment. India has such cooperation programmes with the Netherlands, Norway, Sweden, Denmark, Great Britain, the USA, the USSR, Canada, Japan and FRG, in addition to social forestry programmes with external assistance.

In 1988, a move was initiated for studies of environmental degradation and natural disasters through SAARC. The Ministry is playing a coordinating role in deliberations on global environmental problems such as depletion of ozone layer, green house effect and global warning, transboundary movement of hazardous chemicals and chemical wastes.

India is a signatory to World Heritage Convention and the Ministry deals with the natural sites inscribed in this Convention. Keoladeo National Park, Sunderbans National Park, Kaziranga National Park, Nanda Devi National Park and Manas wildlife sanctuary have been inscribed on World Heritage list. India is a member of Convention on International Trade in Endangered Species, International Whaling Commission, Antarctica Treaty and Convention on Migratory Species. It is also a party to a number of other international agreements for protection of flora and fauna.

MONITORING

Government has constituted an Environmental Monitoring Committee with a view to ensuring effective implementation of environmental safeguards in irrigation, multi-purpose and flood control projects. Headed by Member (Water Planning), Central Water Commission, it has representatives of Ministries of Water Resources, Environment and Forests, Agriculture, Welfare, Planning Commission and Central Water Commission.

Whenever need arises, representatives of other national organisations such as Botanical Survey of India, Department of Forests, Basin Authorities, etc., are invited for discussions on any related specific issues. The committee will review mechanism established by project authorities to monitor ecology of project areas, irrigation command areas and catchment areas and suggest additional compensatory measures/facilities whenever necessary.

ANTI-POLLUTION AWARD

Government has approved a scheme of awards for non-polluting industries. This is for the first time that a scheme to encourage industries to take significant steps for prevention and abatement of pollution is being introduced anywhere in the country. Awards numbering up to 15 will be given every year. Of these 10 will be given (two for each region) to major and medium industries or operations and five (one for each region) for small scale industries or operations. The selection of industries will be on the basis of their location in the five regions, namely, north, central, east, south and west.

9 Health

HEALTH and human development form integral components of overall socio-economic development of any nation. Under the Constitution, public health and sanitation and hospitals and dispensaries fall in the State List. Population control and family planning, medical education, adulteration of food stuffs and other goods, drugs and poisons, medical profession, vital statistics including registration of births and deaths, lunacy and mental deficiency are in the Concurrent List.

Union Ministry of Health and Family Welfare plays a vital role in the national efforts to help citizens lead a healthy and happy life. The Ministry is responsible for implementing programmes of national importance like family welfare, primary health care services, prevention and control of diseases, etc., which form the main plank of our development efforts. Also our national commitment is to attain the goal of 'health for all by the year 2000 AD' in accordance with the Alma-Ata Declaration of September 1978.

HEALTH PLANS

The broad objectives of the health programmes so far have been to control and eradicate communicable diseases and to provide curative and preventive health services in rural areas through the establishment of a primary health centre in each community development block and to augment programmes for the training of medical and para-medical personnel. In the overall health development programmes, emphasis is being laid on preventive and promotive aspects by organising effective and efficient health services. There is now a number of training centres for different categories of health workers, *i e.*, nurses, sanitary inspectors, para-medical workers, non-medical supervisors, physiotherapists, etc. The plan of action on the report of the Group on Medical Education and Support Manpower for a three-tier reconstruction of entire health care system has been worked out. The scheme of involvement of community level workers *i.e.*, teachers postmasters and *gram sevaks*, is also being implemented. Government is extending financial assistance to voluntary organisations/institutions under grant-in-aid schemes *i.e.*, scheme for improvement of medical services, special health scheme for setting up new hospitals/dispensaries in rural areas and extension of existing hospital buildings and also for purchase of equipment. Apart from this. financial assistance is also given to voluntary organisations for voluntary blood donation programme.

The pattern of investment in different Plan periods is given in table 9.1.

TABLE 9.1 PATTERN OF INVESTMENT

(Rs crore)

Plan Period	Total Plan Investment/ Outlay	Plan Investment on Health	Investment in Health as percentage of Total
First Plan	1,960.00	65.20	3.30
Second Plan	4,672.00	140.80	3.00
Third Plan	8,576.50	225.90	2.60
Annual Plans	6,625.40	140.20	2.10
Fourth Plan	13,778.80	335.50	2.10
Fifth Plan	39,426.20	760.80	1.90
Annual Plan	12,176.50	223.10	1.82
Sixth Plan	97,500.00	1,821.10	1.86
Seventh Plan	1,80,000.00	3,392,89	1.88
Annual Plan (1985-86) Actuals	33,059.09	579.90	1.80
Annual Plan (1986-87) R.E.	40,260.07	683.10	1.70
Annual Plan (1987-88) Outlay	44,698.04	822.40	1.80

ACHIEVEMENTS

Planned development in over three decades has resulted in vastly improved health facilities. The number of doctors and hospital beds has increased by more than two and a half times and that of nurses by more than six times. The number of medical colleges has increased from 30 before the initiation of the First Plan to 126 at present. In rural areas, there were 16,756 primary health centres/subsidiary health centres and 1,12,004 sub-centres as on 31 December 1988. None existed before 1951. Diseases like malaria, tuberculosis and cholera, which used to take a heavy toll of life, have been controlled to varying degrees. No case of plague has been reported in the country since 1967. Smallpox which was a dreadful disease, has been eradicated. The general death rate has come down from 27.4 per thousand in 1951 to an estimated 10.9 per thousand in 1988 and life expectancy at birth has increased from 32 in 1941-51 to over 58.6 in 1986-91. The infant mortality rate had come down from 146 in the 50s to 94 in 1988.

NATIONAL HEALTH PROGRAMMES

MALARIA

National Malaria Eradication Programme is the world's biggest health programme against a single communicable disease and continues to be the country's most comprehensive and multifaceted public health activity. With the successful implementation of programme in 1958, the annual incidence of malaria was drastically reduced from 7.5 crore at the time of independence to about one lakh in 1965. Deaths due to malaria were completely eliminated. Unfortunately, due to various factors these achievements could not be maintained. Resurgence of malaria necessitated renewed vigorous anti-malaria activities and the programme was modified in the context of escalating malaria incidence. The Modified Plan of Operation was implemented from 1 April 1977. Since then, there has been a gradual downward trend in malaria cases and there were only 18.54 lakh incidents in 1988 and 19.37 lakh (provisional) in 1989.

FILARIA

National Filaria Control Programme has been in operation since 1955. It is estimated that 36.7 crore people are exposed to the risk of filariasis. One crore ninety lakh manifest the disease and 2.5 crore have the filaria parasites in their blood.

Activities under the programme at present are confined only to antilarval operations in urban areas where 204 filaria control units provide protection to four crore persons. Twenty seven survey units and 192 clinics are functioning. Besides, 12 headquarters bureaux are functioning at the state level. So far, only 243 out of 301 districts in the endemic states, have been surveyed. One hundred and seventy four districts have been found to be endemic for filariasis. Survey work is on in the remaining 58 districts.

Training in filariology is imparted at three Regional Filaria Training and Research Centres situated at Calicut, Rajahmundry and Varanasi under the National Institute of Communicable Diseases of Delhi.

KALA-AZAR

Kala-azar is endemic in Bihar and West Bengal. Directorate of National Malaria Eradication Programme (NMEP) monitors the kala-azar situation in the country. Its kala-azar unit regularly collects kala-azar incidence reports and keeps a close vigil over the situation. Kala-azar control activities are being implemented in Bihar and West Bengal under NMEP on 50:50 cost sharing basis.

LEPROSY

Leprosy is a major public health and social problem. All states/UTs report leprosy cases but the endemicity varies from state to state and district to district. There are about 40 lakh leprosy cases in the country. Of these, 15 to 20 per cent are infectious while an equal number of the cases have deformity. It is highly endemic (15 to 20 per cent) among the children. National Leprosy Control Programme has been in operation since 1955, but it received a high priority only after 1980. The programme was redesignated as National Leprosy Eradication Programme in 1982-83 on the recommendations of an expert group committee. It is implemented as a Centrally-sponsored scheme. The programme is goal-specific and target-oriented with an ultimate aim to achieve eradication of disease by the year 2000. At the end of March 1989, 720 leprosy control units, 931 urban leprosy centres, 294 temporary hospitalisation wards, 244 district leprosy units, 6,100 SET centres, 49 leprosy training centres and 37 sample survey-cum-assessment units had been established in various states/union territories under the programme.

The treatment of leprosy cases with a number of drugs instead of one, has been found highly effective. Government has recognised the advantages of Multi-Drug Treatment (MDT) over traditional single drug therapy *i.e.*, Dapsons monotherapy. Seventy endemic districts (population-160 lakh) with 20 lakh leprosy cases have been brought under MDT Another 20 endemic districts (population-530 lakh) with case load of five lakh were brought under MDT.

At the end of January 1990, 22 lakh leprosy cases were on record and getting regular treatment. This is likely to increase in the coming years. Forty nine leprosy training centres have been established to impart training under the programme. So far, over 6,500 medical officers and 20,500 para-medicals have been trained in leprosy control activities.

About 285 voluntary organisations are supplementing the governmental efforts in the fight against leprosy. All the voluntary organisations operate under the direction of National Leprosy Eradication Board. Over eight lakh leprosy cases are on the records of voluntary organisations.

A community-based comprehensive scheme has been drawn to rehabilitate leprosy-cured persons. It will be taken up in the first phase on a pilot basis in five endemic districts—one each in Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra and Orissa.

TUBERCULOSIS

Tuberculosis is another major public health problem. About 1.5 per cent of the population is estimated to be suffering from radiologically active tuberculosis of the lungs of which 0.4 per cent are sputum positive and infectious.

At present district TB centres are functioning in 378 districts to undertake TB Control Programme in association with general health and medical institutions. In addition to it, 330 TB clinics are functioning mainly in urban areas. Primary health centres have also been involved actively in TB detection and treatment activities. In rural areas, multi-purpose health workers and village health guides are also being involved in motivation and health education activities under the programme. There are about 46,000 TB beds available in the country for treatment of serious and emergent TB patients. National Tuberculosis Institute, Bangalore, which was established in 1959, is engaged in training of medical and para-medical personnel and monitoring the National TB programme.

Essential activities under the programme have expanded considerably during the last five years. Targets have been laid for detection of new TB cases from 1982-83 and for sputum examination of new chest symptomatics at the primary health centres each year since 1983-84. During 1988-89, about 15.57 lakh new TB cases were detected against the target of 15 lakh. Duration of treatment for tuberculosis patients with conventional regimens is of 12 to 18 months and is believed to be one of the major causes for irregularity and premature stoppage of the treatment by the patients. With the advent of Rifampicin and Pyrazinamide, it has become possible to reduce the duration of treatment to six to eight months. Short course chemotherapy drug regimens containing Rifampicin and Pyrazinamide are being introduced in District TB programme under National Tuberculosis Control Programme in a phased manner. So far 212 districts have been brought under it.

SEXUALLY TRANSMITTED DISEASES

For the management and control of sexually transmitted diseases (STD) in the country, Government has laid emphasis mainly on teaching, training, research, epidemiology and health and community education in sexually transmitted diseases. Government has established five regional STD teaching-cum-training centres, five regional STD reference laboratories and five regional survey-cum-epidemiological units at Calcutta, Delhi, Hyderabad, Madras and Nagpur to function on a zonal basis. In the regional STD teaching-cum-training centre orientation courses are conducted for the in-service medical and para-medical personnel in the discipline of venereology and the trainees are paid stipends at the rate of Rs 800 and Rs 620 per month respectively.

Since the main target group of AIDS patients is the STD patients, the STD control programme has been further intensified during the Eighth Plan period providing thereby: (a) establishment of new STD clinics and augmenting the existing ones; (b) providing free treatment to the STD patients by supplying essential drugs to the clinics, and (c) opening more survey-cum-empidemiological units in states. WHO and donor countries have been asked to assist in implementing Medium Term Plan for Prevention and Control of ALDS in India.

BLINDNESS

National Programme for Control of Blindness was launched in 1975-76 which incorporates the earlier Trachoma Control Programme started in 1968. About 300 lakh persons are suffering from visual impairment. Over 120 lakh are blind, of them over 100 lakh can be cured by operation. The National programme aims at educating people on eye care, providing ophthalmic services to rural areas through mobile ophthalmic units and establishing a permanent infrastructure for eye health services within the existing public health delivery system.

Eighty fully-equipped general mobile units are functioning in different parts of the country. Each unit carries out from 1,500 to 2,000 intra-ocular operations every year. One hundred and thirty district mobile units have been created under the programme as extension units of district hospitals. The ophthalmology departments of 60 medical colleges have been developed to become community ophthalmic centres. Nine institutes of ophthalmology have achieved the status of regional institutes. Apart from the mobile units, 404 hospitals have been upgraded to start an eye unit in each district. So far, 4,200 block level primary health centres have been provided with ophthalmic equipment. The nine Regional Institutes of Ophthalmology and Dr. Rajendra Prasad Centre for Ophthalmic Sciences, New Delhi, are being assisted for manpower development, research and referral services. Ninety six medical teaching institutions and eight voluntary organisations have been financially assisted in strengthening eye banks for registration of donors, collection and distribution of donor material for corneal transplantation.

Eye antibiotic ointment tubes are being distributed to the states to control trachoma and associated infections. Government gives financial assistance up to Rs 12,000 per eye camp to voluntary agencies and *panchayat* bodies at the rate of Rs 60 per intra-ocular operation.

CANCER

Cancer is a disease which carries a high rate of mortality unless it is detected and treated early. In India at any given time it is estimated that there are 15 to 20 lakh cases and about five lakh new cases occur every year. The mortality rate is very high and almost three lakh cancer patients die a year. Cancer of oral cavity in both the sexes and of cervix in women are by far the most common malignancies. Breast cancer incidence is also very high. It has been estimated that about 36 per cent of the total cancer cases are related to tobacco use. The data on cancer incidents in India is derived from six population–based and six hospital-based cancer registries set up by Indian Council of Medical Research (ICMR).

Surgery, radiotherapy and chemotherapy are the main modalities of treatment for cancer. Surgery is the most effective mode of treatment for cancer cases detected early. It is also estimated that about 60 per cent of the cancer cases in India require radiotherapy while 10 per cent cases need chemotherapy. Surgery facilities are available in all major hospitals. There are about 160 cobalt therapy units in 97 institutions including 10 regional cancer centres in the country. Chemotherapy can be made available at any major hospital in the country by trained physicians.

A highly sophisticated machine for cancer treatment '4-6 MeV Linear Accelerator (LINAC)' has been developed and successfully installed at PGI, Chandigarh. With this India joins hi-tech area in electronics for health care.

GOITRE

Endemic goitre has been recognised as an age-old health problem in the Himalayan belt. With recent extensive studies, it is now established that about 17 crore people in the country are exposed to iodine deficiency disorders. In 25 states till date, the survey findings are available in respect of 142 districts of which 122 have been found to be endemic for iodine deficiency disorders. It is estimated that about 4.5 crore people are suffering from some of the manifestations of these disorders.

National Goitre Control Programme is being implemented on a priority basis. Government has decided to iodise the entire edible salt in the country in a phased manner by 1992. The production of iodised salt has registered a steep rise during the last two years. A record production of 21.90 lakh MT was achieved in 1988-89 against 16.87 lakh MT during 1987-88. With a view to ensuring proper monitoring and effective implementation of the National Goitre Control Programme, states/union territories have been advised to establish a goitre cell. Presently, 17 states/union territories have established such cells.

JAPANESE ENCEPHALITIS

After the occurrence of Japanese Encephalitis (JE) epidemic in different states in 1977-78, Government reached an agreement with the Government of Japan for the manufacture of Japanese Encephalitis vaccines.

This vaccine is being manufactured at CRI, Kasauli while its supervised administration is being undertaken in Assam, Andhra Pradesh, Uttar Pradesh and West Bengal. JE control activities are being implemented in problem states under NMEP.

MEDICAL RELIEF AND SUPPLIES

HOSPITALS AND DISPENSARIES

Medical services are primarily provided by the Central and state governments. Certain charitable voluntary and private institutions also provide medical relief. The district and sub-divisional hospitals are being further developed by removing deficiencies in referral services. The number of hospital beds (both government and private) was 5.98 lakh as on 1 January 1989 as compared to 1.13 lakh in 1951-52. The bed-population ratio is now 0.74 per 1,000 population, which was 0.24 at the commencement of First Plan. The number of registered doctors and nurses at the end of 1987 was 3.32 lakh and 3.30 lakh respectively.

CENTRAL GOVERNMENT HEALTH SCHEME

Central Government Health Scheme (CGHS) started in July 1954 to facilitate the medical treatment of Central government employees and their families in Delhi, was gradually extended to other cities. Now it covers Allahabad, Bombay, Calcutta, Madras Bangalore, Hyderabad, Kanpur, Meerut, Patna, Nagpur, Pune, Jaipur, Ahmadabad and Lucknow. The benefits of the scheme have been extended to: (a) ministers and state ministers of Central government and their families; (b) members of Parliament, ex-members of Parliament and their families; (c) retired Central government servants and widows of Central government pensioners and persons retired from All India Services and their families; (d) ex-vice Presidents and ex-Governors and their families; (e) retired judges of Supreme Court and high courts and members of their families; (f) employees of certain selected semi-government and autonomous bodies (in Delhi only); (g) members of staff side of National Council of Joint Consultative Machinery (JCM) and their families; (h) members of general public (in Delhi only); (i) accredited journalists, and (j) freedom fighters.

The scheme which started with 16 allopathic dispensaries in 1954 covering about 2.3 lakh beneficiaries, has now 304 dispensaries/hospitals in various systems of medicine like *Ayurveda, Unani, Siddha,* Homoeopathy and Allopathy and provides service to about 37.59 lakh beneficiaries. There are also three *yoga* centres under the scheme in Delhi. Apart from this, the scheme at various cities has all the arrangements for hospitalisation and specialist consultation of beneficiaries with private and state government hospitals. Two hundred and seven government/private hospitals have been recognised under CGHS at Bombay, Madras, Calcutta, etc., where the beneficiaries can get specialised treatment and hospitalisation facilities. Apollo Hospital, Madras is in the list of recognised hospitals under the scheme for coronary by-pass surgery for which the country has only very few hospitals at present. National Heart Institute and Batra Hospital, both in New Delhi are the latest addition to the referral hospitals for specialised treatment for coronary by-pass surgery. Admission in these hospitals for specialised treatment for CGHS beneficiaries has to be with the prior approval of Director (CGHS).

PRIMARY HEALTH CENTRES

Primary health care is being provided to rural population in the country through a network of 19,640 primary health centres, 1,21,874 sub-centres, and 1,666 community health centres by 5.86 lakh trained *dais* and 4.10 lakh health guides besides a large number of rural dispensaries working under state governments/union territory administrations. It is proposed to expand these facilities further in a phased manner so as to have one primary health centre for every 30,000 population (20,000 in hilly and tribal areas), one sub-centre for every 5,000 population (3,000 population in hilly and tribal areas) by 31 March 1990 and one community health centre for about every one lakh population by 2000 AD.

INDIAN SYSTEMS OF MEDICINE

Indian Systems of Medicine (ISM) include all the non-allopathic systems of medicine and regimens excluding Homoeopathy *viz.,* Ayurveda, Siddha, Unani, Nature Cure, *Yoga, Tibbia* and *Amchi.* There are about four lakh registered practitioners under these systems, mostly in rural areas. ISM has 13,770 dispensaries and 1,691 hospitals/wards having over 19,568 beds. There are 98 Ayurvedic, 17 Unani and two Siddha colleges functioning in the country in both government and non-government sectors for Under-graduate education. The annual admission capacity for Under-graduate education is 3,857 in Ayurveda, 656 in Unani and 150 in Siddha.

Besides the National Institute of Ayurveda, Jaipur, the two full-fledged Post-graduate institutions in Ayurveda at Banaras Hindu University, Varanasi and Gujarat Ayurveda University, Jamnagar, there are twenty two colleges having Post-graduate education facilities in Ayurveda, two in Unani and one in Siddha. The admission capacity for Post-graduate courses in Ayurveda is 318, 35 in Unani and 20 in Siddha.

Government has set up a National Institute of Unani Medicine at Bangalore in collaboration with government of Karnataka. The Institute has been registered as an autonomous body under the Karnataka Societies Regulation Act, 1960.

Central Council of Indian Medicine (CCIM), New Delhi regulates the practice and maintains uniform standard of education for Ayurveda, Unani and Siddha.

HOMOEOPATHY

There are 96 institutions imparting Under-graduate education in Homoeopathy of which 69 are in the non-government sector. The National Institute of Homoeopathy at Calcutta offers the highest diploma level education after completion of the four and a-half year diploma course in Homoeopathy. Forty nine institutions are affiliated to universities and the remaining 47 to boards. The admission capacity for degree courses is 2,809 and diploma courses 2,395. The Central Council of Homoeopathy regulates the educational standard and professional practice in the system. There are 163 hospitals/wards with 4,318 beds, 5,183 dispensaries and 1.43 lakh practitioners of Homoeopathy in the country.

There are five colleges imparting training in Naturopathy in the government as well as non-government sector with 135 admissions per year in all. Only one college is affiliated to a univerisity. A National Institute of Naturopathy at Pune in Maharashtra as an autonomous body, is being set up.

RESEARCH

Four research councils *viz.*, (i) Central Council for Research in Ayurveda and Siddha (CCRAS). (ii) Central Council for Research in Unani Medicine (CCRUM), (iii) Central Council for Research in Homoeopathy (CCRH) and (iv) Central Council for Research in Yoga and Naturopathy (CCRYN) are registered societies fully financed by Government.

CCRAS, through its six central major research institutes, eight regional research institutes, 10 regional research centres and 60 research units, four grant-in-aid enquiries including two tribal health care research projects, is enagaged in multifaceted research programmes. These are primarily in the field of applied research, drug standardisation, multi-disciplinary drug research and indigenous contraceptives.

CCRUM has one central research institute, seven regional research institutes, 11 clinical research units, five drug standardisation research units, one literary research unit, a central herb garden, an information centre and two family welfare research units. Standards have been finalised for 100 single and 260 compound drugs so far. Government has also constituted a Unani Pharmacopoeia Committee to prepare an official formulary and pharmacopoeia on Unani drugs.

CCRH has one central research institute, three regional research institutes, 35 clinical research units (including 21 in tribal areas), four drug proving research units, two drug standardisation units, three clinical verification units, one medicinal plant survey unit, one grant-in-aid unit to conduct clinical research, drug proving, drug research and drug standardisation, literary and survey research as well as documentation and one information centre.

CCRAS is publishing a quarterly journal of research in Ayurveda and Siddha and the bulletins of Indian Institute of History of Medicine. The Council has also published *Sabachandrika* and two monographs entitled 'Medico Botanical Exploration of Puri District' amd 'Observation on Medico Botany of Andaman and Nicobar Islands.' CCRUM is publishing a newsletter regularly and also has published a book entitled *Kitabal-jami-Li-Mufradat* (Vol.II).

CCRYN is providing assistance for conducting reasearch in Yoga and Naturopathy. The projects approved by the governing body of the Council have been provided grant-in-aid. The Council has been financing certain research projects and is at present examining new research projects received from different organisations of Yoga and Naturopathy for providing financial assistance. Since no separate agency has been established for the purpose of standardisation of education in Yoga and Naturopathy, the Council is charged with this responsibility also. The Central Research Institute for Yoga, an autonomous institute Centrally-assisted, is engaged in fundamental research on various yogic practices and clinical research. Besides, there is a number of training centres for Yoga in different parts of the country, mostly run by voluntary organisations.

INDIAN MEDICINES PHARMACEUTICAL CORPORATION

Government has established a public sector undertaking *viz.*, Indian Medicines Pharmaceutical Corporation Ltd., with the primary objective of producing quality Ayurvedic, Unani and Siddha medicines. The factory and the registered office are situated at Mohan, Almora district. This is a joint venture.

Uttar Pradesh government is participating in this project through the Kumaon Mandal Vikas Nigam, a public sector undertakiing. The Corporation has started commercial production since 1983-84. A large number of medicines produced at the factory are being supplied primarily to CGHS and research councils.

PHARMACOPOEIAL LABORATORIES

Pharmacopoeial Laboratory of Indian Medicine and Homoeopathic Pharmacopoeial Laboratory, both at Ghaziabad, are subordinate offices of the Ministry of Health. The former is engaged in laying down the standards of single drugs and compound formulations of Ayurvedic, Unani and Siddha systems of medicine, while the latter established in 1975 functions as a standard-setting-cum-drug-testing laboratory at national level. This laboratory also works out various standards.

DRUGS

The Drugs and Cosmetics Act, 1940, as amended from time to time, regulates import, manufacture, sale and distribution of drugs and cosmetics in the country. Under the Act, import, manufacture and sale of substandard, spurious, adulterated or misbranded drugs are prohibited. Government is empowered to check the quality of imported drugs, coordinate the activities of the states, lay down regulatory measures and standards of drugs and grant approval for the import or manufacture of new drugs. The control over the quality of drugs which are manufactured, sold and distributed in the country, is exercised by state governments. Zonal offices of the Central Drugs Standards Control Organisation (CDSCO) at Bombay, Calcutta, Ghaziabad and Madras maintain close liaison with state organisations for enforcement of the provisions of this Act. CDSCO arranges training programmes for personnel concerned with drugs standard control.

Central Drugs Laboratory, Calcutta functions as the testing laboratory for imported drugs and analytical quality control of drugs manufactured within the country on behalf of the Centre and state drug control authorities. It is the appellate laboratory under the Drugs and Cosmetics Act to test samples of drugs sent to it by courts. Central Indian Pharmacopoeia Laboratory, Ghaziabad tests samples of non-biological drugs included in the Indian Pharmacopoeia.

PRICES

Prices of bulk drug formulations have been under statutory control since 1962, but more effectively from 1970. The Drugs (Prices Control) Order, 1970 has now been replaced by the Drugs (Prices Control) Order, 1979. As a result of these measures, the wholesale price index of drugs and medicines has been kept steady *vis-a-vis* other commodities.

VACCINE PRODUCTION

India is self-sufficient in the production of all vaccines including measles required for immunization programme except polio. The polio vaccine is imported in bulk in a concentrated form. It is diluted and ampouled at the Haffkine Bio-Pharmaceutical Corporation Ltd., Bombay. The indigenous production of polio vaccine is also to start soon.

IMMUNIZATION PROGRAMME

Recognising the potential of immunization as a low cost efficient technology for child survival and prevention of disabilities, Government started the Expanded Programme on Immunization (EPI) in 1978 with the objective of reducing the morbidity, mortality and disability due to diphtheria, whooping cough, tetanus and tuberculosis by making free vaccination services easily available to all eligible children and expectant mothers. Polio vaccine was included in the programme during 1979-80 and tetanus toxide (school children) in 1980-81. BCG was brought under EPI in 1981-82 and measles vaccine was initiated in 1985-86.

The Immunization Programme is a long term one. The immunization services are provided through the existing health-care delivery system and there is no separate cadre of field workers. The services are available in hospitals, dispensaries, MCH clinics and family welfare centres in the urban areas and primary health centres and sub-centres in the rural areas. Health workers also organise out-reach sessions in the sub-centres and villages, which are outside the reach of health centres.

To improve vaccine coverage and quality of service, a major shift in strategy was adopted in 1985 with the launching of the Universal Immunization Programme (UIP). Under the programme, 30 districts were selected during 1985-86 with the aim of achieving 85 per cent coverage of infants and 100 per cent coverage of pregnant women. In 1989-90 all the districts of the country had been brought under the programme. The major tasks of UIP are expansion of vaccine coverage of the eligible population, strengthening of cold chain of vaccines, procurement and distribution of essential equipment, training of health personnel, preparation of health education material, promotion of community participation, development of surveillance systems, operational research, monitoring and evaluation.

At the inception of UIP the country had comparatively very low levels, ranging from 29 per cent for BCG vaccine and 41 per cent for DPT vaccine, of coverage in terms of the infants and expectant mothers protected against the vaccine preventable diseases. The programme has since made several strides and as a result of concerted efforts the coverage levels for various vaccines ranged between 55 per cent to 79 per cent at the end of 1988-89. A national review of the programme conducted in May 1989 indicated increased levels of coverage. Immunization break-up by January 1990 was: Tetanus-154.82 lakh children; DPT-163.43 lakh; Polio, BCG and Measles-161.73 lakh, 181.76 lakh and 133.40 lakh respectively; DT-108.88 lakh, and TT-132.94 lakh; coverage of women and children against nutritional anaemia was 147.57 lakh and 164.96 lakh respectively. Children covered against blindness due to Vitamin A deficiency were 294.63 lakh during the same period.

The target for 1989-90 was to cover infants and pregnant women, 85 and 100 per cent respectively. In numerical terms this means providing the immunization services to 191.81 lakh infants and 252.05 lakh pregnant women.

OBJECTIONABLE ADVERTISEMENT

The Drugs and Magic Remedies (Objectionable Advertisement) Act, 1955 prohibits the publication of objectionable advertisements relating to sexual stimulants, alleged magic cures for venereal disease and diseases peculiar to women. The Act as amended in 1963, also prohibits import and export of objectionable advertisements and authorises the customs and postal authorities to intercept articles suspected to contain such advertisements.

MEDICAL STORES ORGANISATION

Medical Stores Organisation (MSO) with seven units at Bombay, Calcutta, Guwahati, Hyderabad, Madras, Karnal and Delhi, is responsible for procurement and supply of quality medical stores including equipment to about 1,800 regular indentors over the country at the most economical rates. MSO has three chemical laboratories attached to the Medical Stores/Depots at Bombay, Calcutta and Madras. Most of its clients are small hospitals and dispensaries in rural or sub-urban areas. Apart from general supplies, it receives supplies from international agencies like UNICEF, SIDA, WHO, USAID, etc., and distributes them all over the country. Various drugs and other commodities required for running the national health programmes like Leprosy Eradication Programme, TB Control Programme, Malaria Eradication Programme and Family Welfare Programme are handled by this Organisation. It arranges relief supplies to victims of natural and national calamities like droughts, floods, cyclones, wars, agitations, etc. MSO has also taken over the responsibility of making supplies of medical stores to CGHS throughout the country. Besides, it arranges gift supplies to foreign countries at the instance of the Ministry of External Affairs.

At its Bombay and Madras factories a large number of formulations such as tinctures, bandages, syrups, tablets and ointments, are manufactured to meet the requirement of indenting units.

FOOD ADULTERATION

The Prevention of Food Adulteration Act, 1954 has been in force since 1 June 1955 with the objective of ensuring that food articles sold to consumers are pure and wholesome. It also aims at preventing fraud or deception and encouraging fair trade practices. A minimum imprisonment of six months with a minimum fine of Rs 1,000 is envisaged under the Act for cases of proven adulteration whereas for the cases of adulteration which may render the food injurious to cause death or such harm which may amount to grievous hurt, the punishment may go up to life imprisonment and a fine which shall not be less than Rs 5,000.

The administration of the Act and the provisions thereunder is the primary responsibility of state governments and union territory administrations. The Central government lays down broad policies in this regard, carries out the necessary amendments to the Act and Rules and advises state governments and union territory administrations in the effective implementation of the programme. For advising the Centre or the state governments with regard to implementation of the Act, there is a statutory body, namely, Central Committee for Food Standards. The Committee is assisted by various technical sub-committees. The Act is, by and large, implemented by local bodies. States have been advised to establish separate food cells.

There are four Central food laboratories *viz.*, Central Food Laboratory at Central Food Technological Research Institute (CFTRI), Mysore; Central Food Laboratory at Food Research and Standardisation Laboratory, Ghaziabad; Central Food Laboratory at State Public Health Laboratory, Pune and Central Food Laboratory, Calcutta. Samples are sent to these appellate laboratories by courts. Statements of facts contained in the report given by the laboratories are considered to be final and conclusive evidence.

There are 76 food laboratories under the control of state governments/ local bodies. The samples lifted by food inspectors are sent to these laboratories and on the basis of the reports, prosecutions are launched in courts.

Under joint FAO/WHO Food Standards Programme, Codex Alimentarius Commission has been established to formulate world-wide standards for food. India is also a member of this body. A National Codex Committee has been set up under the Ministry of Health and Family Welfare to formulate the Indian viewpoint on various matters concerning international food standards programme.

Training being an important component of the programme for prevention of food adulteration, the Directorate General of Health Services organises in-service training programmes for different functionaries responsible for its implementation. It also organises training in collaboration with various institutes in the country. Fellowships are provided by WHO for training analysts in sophisticated methods of analysis.

NUTRITION

The major nutritional problems are protein energy malnutrition, Vitamin A deficiency and anaemia. Goitre is widely prevalent while fluorosis and lathyrism are localised to certain regions. State nutrition divisions set up in health directorates of 17 states and two union territories to assess the diet and nutritional status in various groups of population, conduct nutrition education campaigns, supervise supplementary feeding programmes and other nutritional ameliorative measures. Surveys conducted by state nutrition divisions and National Nutrition Monitoring Bureau under ICMR have revealed that the protein energy malnutrition and other deficiency disorders are prevalent in the large section of the population, the most affected being the young children, pregnant and lactating mothers.

To combat the problem, various nutrition programmes are being implemented by Government. The Integrated Child Development Services Scheme (ICDS) provides a package of services which includes supplementary feeding, nutrition and health education, referral services, immunization, health check-up and non-formal education, treatment of minor ailments and assimilation of other supportive services like water supply, sanitation, etc. Att present there are 1,738 projects including 218 in the state sector. Special nutrition programme which provides supplementary nutrition is being gradually merged with ICDS. The Mid-day Meal Programme is meant for primary school children.

To prevent blindness among children due to Vitamin A deficiency concentrated dose of Vitamin A is given orally every six months through peripheral health workers. Similarly, to prevent nutritional anaemia among women and children, combined tablets of iron and folic acid are distributed through health centres. To promote breast-feeding as means towards better nutrition, Government has adopted the National Code for Protection and Promotion of Breast-Feeding which envisages banning advertisement and promotion of commercial infant foods.

National Institute of Nutrition, Hyderabad and All India Institute of Hygiene and Public Health, Calcutta are the principal organisations for nutrition research and training of nutrition workers.

MEDICAL EDUCATION AND RESEARCH

Indian Medical Council functions as a guardian for the maintenance of standards in medical education. To promote medical education, 126 medical colleges were functioning in 1988-89 as against 30 in 1950-51. Forty dental colleges are functioning in the country with admission capacity of 1,715 students in BDS course. Establishment of new medical colleges and expansion of existing ones had raised the admission capacity from 2,500 in 1950-51 to over 14,045 in 1988-89. Government also proposes to launch a Continuing Medical Education Programme (CME), for which National Academy of Medical Sciences has been designated as the central coordinating agency.

MEDICAL RESEARCH

Indian Council of Medical Research (ICMR) is the apex body in India for the formulation, coordination and promotion of biomedical research. The primary functions of the Council are discharged through its permanent research institutes/centres (20 at present), regional medical research centres, centres for advanced research, research units, task force projects and national multicentric collaborative projects in different parts of the country. In addition, there are ad hoc schemes and fellowships generated by active scientists in biomedical institutions/universities in different parts of the country. ICMR also attempts to strengthen indigenous capabilities, promote a broad-based and balanced cadre of research personnel in the country and develop facilities to tackle the present and future health problems.

Council's research priorities coincide with the national health priorities such as control and management of communicable diseases, fertility control, maternal and child health, control of nutritional disorders, developing alternative strategies for health-care delivery; containment within safety limits of environmental (and occupational) health problems; research on major non-communicable diseases like cancer, cardiovascular diseases, blindness, diabetes and other metabolic and hematological disorders, and mental health research and drug research (including traditional medicine). All these efforts are undertaken with a view to reducing the total burden of diseases and to promote health and well-being of the people.

Research in traditional systems of medicine has adopted a disease-oriented approach. Biomedical informatics has been identified as an important thrust area and efforts have been intensified to bridge the existing gaps between researchers, health planners, policy makers, providers and users of health services. Apart from the print media, the audio-visual media is being used more and more for dissemination of biomedical information.

NURSING EDUCATION

Primarily nursing personnel are trained at four levels: (i) Auxiliary Nurse Midwife (ANM)—There are 411 ANM schools attached to district hospitals and primary health centres. Many are run by private/missionary organisations. Admission requirement for this training is matriculation and period of training is one and a half year. Nearly 20,345 ANMs are under taining in these schools. These ANMs after successfully completing the course are registered as Auxiliary Nurse Midwives with various nursing councils and are employed as female health workers at the sub-centre level. These ANMs after five years of field experience are sent for higher training of Health Supervisors. Forty four such schools are available in the country; (ii) General Nursing and Midwifery—There are 390 schools of nursing midwifery imparting diploma in General Nursing and Midwifery. Nearly 8,000 nurse midwives qualify from these schools. After registeration as nurse midwives they are appointed as staff nurses in hospitals, health centres etc. The admission requirement for the course is senior secondary and duration of the course is three years. After this diploma the nurses can obtain B.Sc. degree in Nursing in two years which is called Post Basic B.Sc. Ten such programmes exist in several universities/medical colleges in Punjab, All India Institute of Medical Sciences, New Delhi, Madras, Bangalore, Calcutta, etc. Besides these states, Assam too is planning such programmes for updating knowledge and skills of practising nurses; (iii) B.Sc. Nursing–There are 19 colleges of nursing which admit candidates with senior secondary (minimum 50 per cent marks) for B.Sc. Nursing course of four years duration. After qualifying these. nurses can work in hospitals, community and speciality areas of hospitals and specialised community programmes like School Health, Occupational Health Nursing, etc. Nearly

450 nurses obtain degree in nursing every year. New colleges have come up in Karnataka and Tamil Nadu which are yet to be recognised, and (iv) Masters degree in Nursing—Eight colleges in the country offer Masters degree in Nursing for B.Sc./Post Basic Nurses. About 50 nurses obtain this degree. Many of them are holding senior teaching and administrative positions.

INDIAN NURSING COUNCIL

Indian Nursing Council set up in 1947 lays down the minimum standards of nursing education. It prescribes syllabi for different training programmes, inspects schools of nursing and maintains statistics of nursing manpower. The Act governing the council is under amendment for making provision of latest trends in health legislation and role of Indian Nursing Council. Several short term courses have been developed by the Council.

NURSING SERVICES

Several steps have been taken to improve that status of nursing and nursing profession. A high power committee was set up to review all aspects of nursing profession *i.e.*, nursing education, nursing services and nursing manpower. Efforts have also been made to revise the pay scales and allowances for nursing personnel. Nurses also enjoy all benefits of pension, bonus, GPF, etc., like other Government employees.

HEALTH EDUCATION

Central Health Education Bureau (CHEB) is an apex organisation in health eduation in the Directorate General of Health Services. The organisation was set up in 1956 to coordinate and promote Health education through various divisions. Its activities include interpreting plans and programmes of Government, training of health and community welfare workers in health education, preparing and distributing health education material to be adopted by states and other agencies, carrying out research in behaviour changes of the community in relation to health practices, evolving effective methodology for training, rendering technical assistance to official and non-official agencies in the field of health education, developing health education syllabi for different age groups of school children and teacher training courses and cooperating and collaborating with international agencies in promoting health education.

The Bureau deals with the development of health education bureaux in states and union territories. So far 25 states and six union territories have set up health education bureaux besides one hundred and forty two district health education units. The Bureau keeps close liaison with all health education units in addition to providing technical guidance. It now publishes four journals, namely, *Swasth Hind* (English monthly), *Arogya Sandesh* (Hindi monthly), *DGHS Chronicle* (English quarterly) and *Swasthya Shiksha Samachar* (Hindi quarterly).

The Bureau brings out printed publicity material for various national health programmes, besides prototype health education material to be adopted by states in regional languages according to their needs. It also provides communication and media support to various national health programmes and maintains liaison with AIR and Doordarshan for broadcasting and telecasting such programmes. It organises exhibitions and helps in production of films, radio and TV spots on health.

Research and Evaluation Division of CHEB is engaged in carrying out research in relation to acceptance of health practices. The Division has so far completed 75 research studies on malaria, smallpox, STD, leprosy, nutrition, water supply, expanded programme on immunization and training programme. Bsides, four other research studies are in progress. It has brought out nine technical papers/reports. It also trains health professionals in research methodology. Seven such training courses have been conducted.

The Bureau conducts a Post-graduate diploma in health education affiliated to the University of Delhi and recognised by the Medical Council of India. It also conducts two courses of two months duration leading to certificate in health education and nine other in-service courses for medical and para-medical personnel.

School Health Education Division of CHEB monitors a Centrally-sponsored national school health service scheme since April 1977. Its objective is to provide school health services to students of primary classes in rural areas through the network of primary health centres. It is also working with NCERT, Board of Secondary Education and UGC to integrate health education in school and university curricula.

FAMILY WELFARE

One of the most crucial problems facing the nation, today, is the burgeoning population which has been growing at an alarming rate. By 1981, India's population had doubled itself since 1947. Ever since it is increasing by about 150 lakh every year Such a rapid increase in population has very serious repurcussions on the socio-economic development. Varying social customs and beliefs favour large family which impede the process of change and willing adoption of modern methods of contraception. A universal desire to have at least one or two male children and the 'mean age' of marriage of women at 18.3 years also become contributory factors to large families. In spite of this, India is committed to attaining the twin goals of 'Health For All' and 'Net Reproduction Rate of Unity' by the year 2000.

In keeping with democratic traditions of the country, Family Welfare Programme seeks to promote on a voluntary basis, responsible and planned parenthood with two-child norm, male and female, or both, through independent choice of family welfare methods best suited to the acceptors. Family welfare services are offered through total health-care delivery system. People's participation is sought through all institutions, voluntary agencies, opinion leaders, people's representatives, government functionaries and various other structures and influential groups. Imaginative use of mass media and interpersonal communication is resorted to for explaining various methods of contraception and removing socio-cultural barriers. As a reslut the number of acceptors of various methods has started to increase over the years.

IMPLEMENTATION MACHINERY

The programmes are implemented through state governments with cent per cent Central assistance. In rural areas, it is being further extended through a network of primary health centres and sub-centres. Seventh Plan envisaged the setting up of 54,612 sub-centres in addition to about 36,881 sub-centres already established during the Sixth Plan. Maternal and child health-care and expanded programme of immunization are also a part of the Family Welfare Programme.

Central Family Welfare Council advises on family welfare programmes at the national level. A number of Central committees like the Research Coordination Committee, have been set up to study the progress of all the research activities.

PERFORMANCE

By January 1990, 35.45 lakh sterilisations had been performed, most of the states registering an improvement in their performance. The number of IUD insertions during the same period was 41.48 lakh. The total number of acceptors of different methods was 137.84 lakh. The all-time record was set in March 1989, when total number of acceptors reached 243.8 lakh (provisional).

Nirodh, besides being provided free is also sold under the social marketing programme which is being operated through a network of over three lakh retail outlets of nine leading consumer goods, pharmaceutical and oil companies. Under this scheme jelly cream tubes are also distributed.

Oral pill programme under free distribution scheme was extended to all urban centres, including those run by local bodies and voluntary organisations. Besides this, social marketing of oral pill under the brand name 'Mala-D', has been undertaken with the help of four pharmaceutical companies on zonal basis. India's first innovative spermicidal condoms *New Share* and *Rakshak* have already been introduced in the market.

IMPACT OF THE PROGRAMME

It is estimated that 41.9 per cent of 13.89 crore eligible couples whose wives are in the reproductive age group of 15-44, were protected by one or another approved method as on 31 March 1989, averting 10.62 crore births.

MEDICAL TERMINATION OF PREGNANCY

The programme of medical termination of pregnancy supplements the

Family Welfare Programme as it provides for legalised abortion in cases of contraceptive failures. A good proportion of the acceptors of abortion go in for some form of contraception like sterilisation, IUD, etc. The Medical Termination of Pregnancy Act, 1971 is in operation since April 1972. A colour test 'Pregelisa' (Pregnancy Test Kit) has been developed. The kit is under rigorous testing procedures and if found suitable, will be marketed throughout the country including rural areas.

MATERNAL AND CHILD HEALTH CARE PROGRAMME

The safe motherhood and child survival programme plays the most important part in family welfare programmes. The programme ensures effective ante-natal care, safe and asceptic delivery, care of mother and infants for immunization, control of diarrhoeal diseases and acute respiratory infections, nutrition education and provision of basic medical care.

The integrated programme of mother and child health aims at the welfare of both mother and child. It has also been extended to homes providing special care to pregnant mothers and children requiring immunization. A network of cold chain has been set up from the manufacturing units to state, regional, district and primary health centre for storage of vaccines at optimum conditions. The *dais* training programmes are being carried out to provide skill and knowledge for safe delivery. A sum of Rs 32.83 crore had been provided during 1988-89 for supply of vaccines and MCH drugs against common communicable diseases and preventing nutritional anaemia and deficiency of Vitamin A in pregnant mothers and infants. An amount of Rs 5 crore was also provided for the programme of Oral Rehydration Therapy to control death due to diarrhoeal diseases among children.

TRAINING OF MULTI-PURPOSE WORKERS

The question of more effective coverage of population and better coordination was considered by the Executive Committee of Central Family Planning Council in 1972. This led to the formation of a package of health and family welfare services at the peripheral level by multi-purpose health workers. Under this scheme, state level health administrators were trained at the National Institute of Health and Family Welfare in the concept and philosophy of the multi-purpose workers' scheme. District level medical officers and key trainers of health and family welfare training centres were trained at Central training institutes.

At present, Family Welfare Training and Research Centre, Bombay; Central Health Education Bureau, New Delhi; National Institute of Health and Family Welfare, New Delhi, and Gandhigram Institute of Rural Health and Family Welfare Trust are imparting this training. The training of staff working at primary health centres *i.e.*, medical officers, health supervisors and block extension educators, takes place at 47 health and family welfare training centres (H&FWTC) all over the country. From 1982 onwards,

ACCEPTORS OF FAMILY WELFARE METHODS

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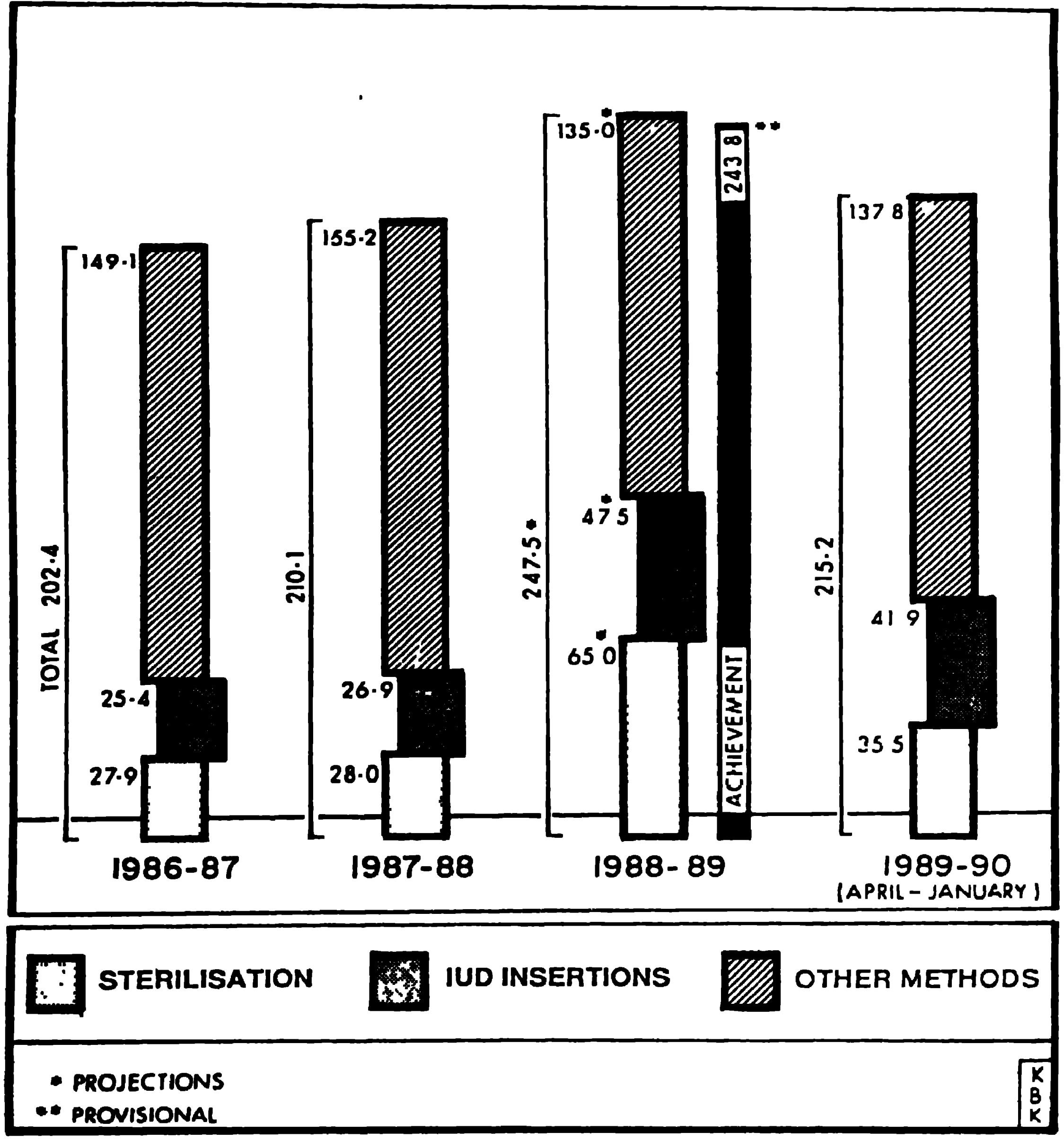

H&FWTCs were also asked to take up basic training of male health workers.

SPECIAL SCHEMES

Four schemes, namely, all India hospitals post-partum programme at district and sub-district level hospitals and PAP smear-test facilities in medical colleges selected for this purpose; revamping of organisational set-up in urban slums of the country; sterilisation beds scheme, and renovation of IUD room at rural family welfare centres attached to primary health centres, are being implemented as special schemes.

The post-partum programme is a maternity-centred-hospital-based approach to family welfare programme and, now, covers 544 medical institutions at national, state and district level and 1,075 at sub-divisional level. All the medical colleges have PAP smear-testing facilities for early detection of cervical cancer among acceptors of family welfare methods. The sub-divisional hospitals have been taken up for extension of post-partum programme with a view to providing the maternal and child health-care services in rural and semi-urabn areas so as to bring an overall improvement in the health status of the mothers and infants. A target of 1,200 sub-divisional hospitals to be brought under the purview of the programme, had been set for Seventh Plan period. So far 987 centres at this level have been sanctioned by state governments.

Urban revamping scheme has been introduced with a view to providing improved service delivery out-reach system of primary health care, family welfare and maternity services in urban areas. No new urban family welfare centres are to be set up but existing urban forces are to be reorganised and new health posts established as per the recommendations of the working group. So far, 1,198 health posts and 14 city family welfare bureaux have been reorganised. State governments have sanctioned operationalisation in 879 health posts and 10 city family welfare bureaux.

Sterilisation beds scheme provides immediate facilities for tubectomy operations in the hospitals where such cases could not be admitted due to lack of facilities. Under the scheme, beds are sanctioned to those medical institutions/hospitals which are run by voluntary organisations on the basis of their performance during the previous year. Beds are sanctioned to the voluntary institutions on the recommendation of the state governments and regional directors of health and family welfare of the respective states. Maintenance grant of Rs 3,000 per bed per annum is paid to each institution subject to the condition that a minimum of 60 tubectomies per bed per annum are performed. A total of 3,611 sterilisation beds had been approved under state government institutions, local bodies and voluntary organisations as on 31 March 1989.

Government has evolved a scheme for renovation/remodelling IUD rooms into an operation theatre at the rural family welfare centres attached to primary health centres for providing improved facilities for sterilisation and MTP services to the population in rural areas. In all, 1,617 primary health centres were approved so far by Central government and another 1,356 sanctioned by states.

MOTIVATION AND EDUCATION

Family welfare programme in India depends on its voluntary acceptance by the people. To approach about 13.89 crore couples in the reproductive age group, living in urban and remote rural areas, a broad-based mass education and motivation programme has been launched. The multi-media campaign is being implemented by media units of the Ministry of Information and Broadcasting, state mass education media set-ups and other publicity agencies/organisations. Ministry of Health and Family Welfare lays down the communication strategy, develops plans and coordinates the media and extension activities of various participating media agencies. The mass mailing unit of the Department of Family Welfare disseminates information in the form of printed material to various categories of opinion leaders through direct mail service. Out of the list of addresses, five lakh are currently operational. In addition to this, the unit publishes two regular monthly journals-*Centre Calling* in English and *Hamara Ghar* in Hindi, and two quarterly publications-*Jan Swasthya Rakshak* in Hindi and *EPI Bulletin* in English.

AREA PROJECT

Ministry of Health and Family Welfare had initiated at the beginning of the Sixth Plan a set of activities to improve health and family welfare delivery systems under the name of Area Project in certain backward districts of the country with the assistance of International/Bi-lateral donor agencies, namely, World Bank, UNFPA, USAID, ODA (UK) and DANIDA. The beginning was made in 1973 covering five districts of Karnataka and six districts of Uttar Pradesh with the assistance of World Bank. The Project has so far been taken up in 96 districts of 15 states. Besides, the second phase of Area Project in Himachal Pradesh and Maharashtra with the assistance of UNFPA and National Training Projects in Andhra Pradesh, Madhya Pradesh and Uttar Pradesh with the assistance of World Bank had been cleared by Expenditure Finance Committee (EFC) for implementation during 1989-90. It is also proposed to take up Training Projects with the assistance of World Bank in Bihar, Gujarat, Haryana, Jammu and Kashmir and Punjab.

All these projects are designed to facilitate the delivery of health and family welfare services and development of training manpower in an integrated manner in accordance with the approach outlined at the outset. While the strengthening of infrastructure will be achieved in the rest of country by the end of this century, the project areas are to get the infrastructure and manpower in a period of five years. The ultimate objectives of the projects are to improve health and family welfare infrastructure in the area covered and to reduce maternal and child mortality and morbidity.

RESEARCH AND EVALUATION

Research activities continued in the field of demography and also communication action through 18 population research centres in various states. Bio-medical research in the field of reproductive biology and fertility control is being done in Indian Council of Medical Research, Central Drug Research Institute, All India Institute of Medical Sciences and National Institute of Health and Family Welfare.

10 Welfare

WELFARE activities in the country find their inspiration in the Constitution which postulates the goal of welfare state. Accordingly, through Directive Principles of State Policy, "the State shall strive to promote the welfare of the people by securing and protecting as effectively as it may, a social order in which justice—social, economic and political, shall inform all the institutions of the national life". Special care shall also be taken "to promote the educational and economic interests of the weaker sections of the people, and in particular of the scheduled castes and scheduled tribes and shall protect them from social injustice and all forms of exploitation". As regards minorities, the Constitution ensures "protection and promotion of these groups to develop according to their own genius."

Welfare is not a matter of charity. Welfare programmes in the beginning were directed to provide a few basic curative and rehabilitative services. Over the years, a developmental orientation in contrast to curative and custodial approach was given to welfare programmes. At present these are oriented towards providing preventive, developmental and rehabilitative services to disabled, aged, addicts, mal-adjusted, scheduled castes and scheduled tribes and other backward and weaker sections.

Hitherto, welfare of weaker sections was entrusted to a number of ministries/departments With a view to providing an integrated thrust to development of these sections of population, a new Ministry of Welfare was formed by pooling subjects relating to welfare of aged, disabled, programmes of social defence, welfare of scheduled castes, scheduled tribes, other backward classes, minorities and work relating to *wakf* matters.

ADMINISTRATIVE SET-UP

Responsibility for implementation of welfare schemes is being shared between Centre and state governments. Centre is responsible for formulating welfare policies and programmes besides coordinating, guiding and promoting implementation of welfare services by states.

Activities of Ministry of Welfare are carried out through five bureaux *viz.*, handicapped welfare, social defence, administration and minorities, tribal development and scheduled castes and backward classes.

WELFARE OF THE DISABLED

Number of disabled people in country has been estimated to be around 120 lakh by National Sample Survey Organisation. The Ministry is implementing programmes for early detection and treatment, education, training and rehabilitation of disabled persons, namely, visually impaired, speech and hearing handicapped, orthopaedically handicapped, mentally handicapped, spastics and leprosy–cured persons.

Four national institutes, one for each category of disabled, have been set up for education, training, vocational guidance, counselling, rehabilitation, research and training in various areas of disability. These institutions are National Institute for the Visually Handicapped at Dehra Dun, National Institute for the Hearing Handicapped at Bombay, National Institute for the Orthopaedically Handicapped at Calcutta and National Institute for Mentally Handicapped at Hyderabad. Besides, National Institute for Rehabilitation, Training and Research at Olatpur (Cuttack), Institute for the Physically Handicapped at New Delhi also assist in implementing various programmes. Artificial Limbs Manufacturing Corporation at Kanpur manufactures aids and appliances for handicapped.

VISUALLY IMPAIRED

National Institute for the Visually Handicapped is an apex organisation in training, research, vocational guidance, counselling, rehabilitation and development of suitable services for blind persons. This Institute also serves as a premier documentation and information centre for visually handicapped. It has a model school for blind children, a school for partially sighted children, a training centre for adult blind, a workshop for manufacture of braille appliances, a sheltered workshop and a Central Braille Press. The Institute also organises training courses for teachers of visually handicapped at regional training centres, namely, Delhi, Patna, Bombay, Calcutta and Hyderabad. A regional centre for south zone has been set up in Madras.

SPEECH AND HEARING HANDICAPPED

Ali Yavar Jung National Institute for the Hearing Handicapped at Bombay was established in August 1982 with the objective of providing integrated services at national level for education, training and research for hearing handicapped. The Institute runs training courses for deaf at its headquarters in Bombay and also at its regional training centres at Calcutta, New Delhi, Hyderabad and Bhubaneshwar. Besides, the training centre for adult deaf at Hyderabad under the Institute provides educational and vocational training to partially deaf. Various audio, visual and print materials have been developed for creation of awareness, early detection, prevention and training of parents. There are at present 300 schools for the deaf, more such schools are proposed in Eighth Plan.

MENTALLY HANDICAPPED

Of the 68.5 crore population of the country (1981 census) roughly two per cent are suffering from mental retardation, most of them in rural areas.

There are 286 special schools and centres for mentally retarded in the country, a maximum of 61 in Karnataka followed by 51 in Maharashtra and 36 in Kerala.

National Institute for Mentally Handicapped (NIMH), Secunderabad is one of the premier organisations set up in 1984 by Government to undertake research, training and rehabilitation of mentally handicapped. With a view to arousing mass awareness on the stupendous problem of mental retardation, NIMH is engaged in development of material to cater to both urban and rural audience which aims at educating parents of mentally handicapped and the community as a whole. This campaign includes prevention of mental retardation, early detection and training of mentally retarded persons, besides creating positive attitude towards mental retardation and removal of misconceptions. It also highlights the need for referral services to organisations providing systematic training and education to mentally retarded. To achieve these objectives, NIMH is engaged in producing literature and audio-visual material in Hindi, English and major languages of the country, suitable even for neo-literates as well as illiterates. The Institute runs a Bachelor's degree course in mental retardation at Secunderabad and training courses for special teachers for mentally retarded at Bombay, Calcutta and New Delhi. It also runs a model school for mentally deficient children at New Delhi.

ORTHOPAEDICALLY HANDICAPPED

National Institute for the Orthopaedically Handicapped, Calcutta was set up in 1982 with the objective of undertaking research and training of personnel for rehabilitation of orthopaedically handicapped persons. Other objectives of the Institute include rendering services to orthopaedically handicapped, developing appropriate service modules, promoting and manufacturing orthoptic and prosthetic aids and appliances.

OTHER INSTITUTES

Institute for the Physically Handicapped at New Delhi, besides running a special school and a workshop for orthopaedically handicapped, trains physiotherapists and occupational therapists. The Institute will soon start degree courses in physiotherapy and occupational therapy. National Institute of Prosthetic and Orthoptic Training at Olatpur (Orissa) meets growing demand of trained personnel in prosthetics and orthoptics, physiotherapy and occupational therapy and renders comprehensive rehabilitation services to orthopaedically handicapped. Several camps are organised in tribal and rural areas.

SCHOLARSHIPS

Scholarships are awarded to visually, speech and hearing and orthopaedically handicapped students for general education and for technical and professional training. About 30,000 scholarships were awarded to disabled students during 1988-89. The scheme is being implemented through state governments/union territory administrations. During 1988-89, Rs 315.27 lakh were provided to states/UTs under this scheme.

SUPPLY OF AIDS AND APPLIANCES

Under the scheme of assistance for purchase and fitting of aids and appliances launched during International Year of the Disabled, aids and appliances costing between Rs 25 and Rs 3,600 are provided free of cost to the persons whose income is up to Rs 1,200 per month and at half the cost to those whose monthly income is between Rs 1,200 and Rs 2,500 During 1988-89, grants-in-aid of Rs 494.25 lakh were provided to 64 implementing agencies recognised for the purpose to cover about 50,000 beneficiaries. In 1989-90 the provision was worth Rs 410 lakh.

ASSISTANCE TO VOLUNTARY ORGANISATIONS

Financial assistance up to 90 per cent of the total cost of projects is being extended to voluntary organisations for providing welfare services for disabled. About 175 implementing organisations were given grants-in-aid amounting to Rs 461 lakh during 1988-89.

REHABILITATION CENTRES

A scheme for setting up of district rehabilitation centres (DRC) on a pilot basis was launched by Government in 1983-84. The scheme envisages comprehensive services for prevention and early detection of disabilities and economic rehabilitation of disabled within the community. It predominantly benefits rural disabled. Eleven DRCs, one each in Orissa, Maharashtra, West Bengal, Karnataka, Tamil Nadu, Haryana, Rajasthan, Madhya Pradesh, Andhra Pradesh and two in Uttar Pradesh, have so far been established. Under this scheme, a National Information and Documentation Centre on Disabilities and a Rehabilitation Technology Centre for development of aids and appliances, have also been established at Delhi. Rehabilitation council, an apex body to enforce uniform standards and training of professionals has also been set up as an autonomous body.

SCIENCE AND TECHNOLOGY PROJECT IN MISSION MODE

Government has set up a Science and Technology Project for application of technology for the welfare and rehabilitation of handicapped. Objectives of the project are to coordinate, fund and direct application of technology in development and utilisation of suitable and cost-effective aids. Also, appliances and methods of education and skillful development are to be improved which would enhance opportunities for employment, easier living and mobility, communication, recreation and integration in society.

SPECIAL EMPLOYMENT EXCHANGES

Special employment exchanges and special cells in normal employment exchanges endeavour placement of handicapped in gainful employment.

During 1988, 5,475 handicapped were placed in jobs through the existing 22 special employment exchanges, 42 special cells in normal employment exchanges and other general employment exchanges. Under the Central scheme of employment of the handicapped, cent per cent assistance is given to states for setting up such special cells.

PETROL SUBSIDY SCHEME

Fifty per cent of the cost of petrol/diesel purchased by handicapped owners of motorised vehicles, subject to certain ceilings, is reimbursed to all handicapped persons whose income is less than Rs 2,500 per month. The scheme is being implemented by states/UTs with Central government providing cent per cent assistance.

NATIONAL AWARDS

Every year, President presents national awards to outstanding employers of handicapped and most efficient handicapped employees/self-employed persons from Government and private sectors, local bodies, public sector undertakings, corporations and placement officers of the handicapped. Award to handicapped employees comprises a citation, a certificate, a medal and cash prize of Rs 1,000. Employers are given a citation and a shield and placement officers are given a citation, a shield and a certificate. National award for the best work done in the year for disabled was instituted in 1983 as a state recognition of voluntary action for the cause of disabled. It consists of a citation, a certificate and a cash prize of Rs 20,000 to an individual and Rs 1 lakh to an institution. From 1988 a National Technology Award for best technological invention for the handicapped has also been introduced.

RESERVATION IN SERVICES

To encourage employment of handicapped, three per cent of group C and D posts are reserved in Central services and public sector undertakings for physically handicapped. Age concession up to 10 years and relaxation in medical standards is available for Central government services.

FAMILY PENSION FOR LIFE

Family pension for life is payable to children suffering from disorder/disability of mind or physically crippled rendering them unable to earn a living, under Central Civil Services (Pension) Rules, 1972. The benefit is admissible only to such children, who are born before or after retirement from marriage that took place before retirement of Government servants.

NATIONAL HANDICAPPED WELFARE FUND

Government has set up a National Handicapped Welfare Fund with voluntary contributions from public sector, private sector and general public. Fund is utilised to augment existing voluntary services for welfare of handicapped.

SOCIAL DEFENCE

Problems of family and social disorganisation are manifest in the form of delinquency, juvenile vagrancy, drug addiction, alcoholism and crimes of various types, etc. In order to control these problems of personal and social deviance, programmes of social defence have been launched by state governments mainly within the framework of specific legislations and allied measures.

SERVICES FOR CHILDREN

Providing care and protection to abandoned, neglected and destitute children is another programme. Objective of the scheme for welfare of children in need of care and protection is to provide welfare services to destitute children for rehabilitating them as normal citizens. The programme includes ameliorative services of food, shelter, clothing, medical attention, education, pre-vocational and vocational training, etc. The scheme was started in 1974-75 and is being implemented as a Centrally-sponsored scheme since 1979-80. Under the scheme, financial assistance is provided to voluntary organisations for maintenance of children, purchase of utensils, voluntary training equipment, etc., and for construction of cottages for destitute children. Ninety per cent of the expenditure is shared by Central and state governments equally, whereas 10 per cent is to be borne by voluntary organisations. Grants are disbursed to voluntary organisations by states which are responsible for monitoring of the scheme and initially recommending cases for bringing such organisations within the ambit of the scheme. Presently, over 44,492 children have been reached under the scheme through nearly 900 voluntary organisations. Budget provision in 1989-90 was Rs 360 lakh as against Rs 300 lakh in 1988-89.

JUVENILE JUSTICE ADMINISTRATION

With a view to providing a uniform pattern of justice to juveniles throughout the country, the Juvenile Justice Act, 1986 was enacted by Parliament in December 1986 replacing children's Acts in various states/ UTs. The Act came into force from 2 October 1987 throughout the country except Jammu and Kashmir. It provides for care, protection, treatment, development and rehabilitation of neglected or delinquent juveniles and adjudication of certain matters relating to, and disposition of, delinquent juveniles. The Act is a major step in administration of juvenile justice with accent on wholesome growth and social reintegration of various categories of socially maladjusted children. It lays down a uniform legal framework so as to ensure that no child under any circumstances is lodged in jail or police lock-up. Juvenile welfare boards and juvenile courts have been established to provide for a specialised appproach towards neglected and delinquent juveniles respectively. During the pendency of any inquiry regarding the juvenile, he shall, unless he is kept with his parents or guardians, be sent to an observation home or a place of safety. After the inquiry is complete (in case institutionalisation is considered necessary), neglected and delinquent juveniles shall be lodged in juvenile homes and special homes respectively. The Act represents a blueprint for fair, equitable and just treatment of juveniles with due emphasis on the rights of child.

In order to effectively implement this Act by establishing and strengthening requisite infrastructure in states/UTs, Ministry of Welfare is implementing a Centrally-sponsored scheme for prevention and control of juvenile special maladjustment since 1986-87. Under this scheme, assistance is provided for setting up/upgradation of observation homes, juvenile homes, special homes and after-care facilities as well as training of functionaries. Expenditure is shared between Central and state governments equally. During 1989-90, provision under the scheme was Rs 340 lakh as against Rs 300 lakh in 1988-89.

WELFARE OF PRISONERS

Welfare of prisoners constitutes an important area of social defence. Ministry of Welfare has recently formulated a scheme for welfare of prisoners for providing counselling and guidance to prisoners and setting up of rehabilitation homes for facilitating reintegration of offenders within the community. It is a Centrally-sponsored scheme, where expenditure is borne equally by state governments and Central government. Objective of the scheme is to identify cases of institutionalised offenders who need prolonged care, protection and assistance in the community, on their release. Under the scheme financial assistance to states/UTs is given for setting up of rehabilitation homes, counselling and guidance centres and de-addiction centres. Expenditure is shared between Central and state governments, voluntary organisations bearing only 10 per cent. In case of tribal areas, respective share of Central government, state government and voluntary organisation is in the ratio of $47^{1}/_{2}$: $47^{1}/_{2}$: 5.

PROBATION SERVICES

Services in this field are being progressively developed within the framework of the Probation of Offenders Act, 1958. The Act contains systematic provisions for probation in respect of various categories of offenders under specified circumstances. It lays down special stress on use of probation in lieu of imprisonment for youthful offenders below 21. Probation officers, as appointed under the Act, conduct social investigation of offenders for consideration by courts. They also supervise cases as are placed under them. Side by side, voluntary organisations provide financial and other assistance to those released on probation.

BEGGARY PREVENTION

Apart from provisions of substantive law against kidnapping, abduction and maiming of children for purposes of begging, 15 states and two union territories have implemented special laws against begging. Besides, municipal and police Acts also provide for measures against begging. Some state governments have taken steps for provision of training and employment facilities for beggars.

PROHIBITION AND DRUG ABUSE

Article 47 of the Constitution enjoins that the State shall endeavour to bring about prohibition of consumption, except for medicinal purposes, of intoxicationg drinks and drugs which are injurious to health. Responsibility for fulfilling the Constitutional obligation in regard to prohibition rests largely with state governments. Government has, however, been continuously making efforts to educate people about ill-effects of drinking through mass media and also encouraging voluntary organisations through grants for educative publicity. Till December 1988, 27 voluntary organisations were given grants-in-aid worth Rs 1.13 crore for promoting the cause of prohibition. The Ministry also produced two short films on prohibition. Prints of these films are supplied to Directorate of Field Publicity for screening them all over India. Besides *Aao Haath Badhayen*, a 10-minute radio-sponsored programme, is broadcast in Hindi on 11 channels of *Vividh Bharati* in Hindi belt. Prohibition is one of the subjects being dealt with under this programme. Apart from the above, Government under a scheme compensates state governments for loss in excise revenue on introduction of prohibition.

Problem of drug abuse has been engaging the serious attention of Government in recent years. It has infilterated amongst various cultural and economic strata of society. A piquant situation has arisen where the individual, the family and the entire fabric of society is threatened with disintegration. It was realised that drug abuse is a psycho-socio-medico problem. To deal with it a community-based approach is required to enable the society to strengthen itself. Thus, Government adopted an integrated approach to tackle this problem which involves identification, referral services, treatment, mass awareness education, rehabilitative aspects and training of functionaries, besides controlling supply of illicit trafficking. A number of ministries/departments are concerned with various aspects of this problem. The Welfare Ministry is looking into the educational and social welfare aspects of drug addiction. A concerted effort to deal with the problem in its entirety was made from 1985-86. Since then 26 de-addiction-cum-rehabilitative centres for treatment of drug addicts, 91 counselling centres and five after-care centres for their rehabilitation have been set up in voluntary sector.

Voluntary organisations are also being assisted for undertaking awareness building programmes such as holding of workshops/meetings/seminars, street plays, pantomime shows, poster/slogan competitions, etc. Financial assistance is also provided for organising de-addiction camps. In 1988-89 a grant of Rs 350 lakh was given to about 75 voluntary organisations covering 19 states/UTs. During 1989-90 drug prevention programmes were also to cover even those endemic areas/cities where such facilities did not exist earlier. More attention is being given to develop trained manpower required for such programmes.

NATIONAL INSTITUTE OF SOCIAL DEFENCE

National Institute of Social Defence functions as Central advisory body for coordination, standardisation and development of social defence programmes in the country. To achieve this the Institute undertakes research on social defence, compiles and analyses statistics on the subject, promotes training/orientation and helps draft model legislation and rules in the field of social defence. It also advises state governments and union territory administrations on various aspects of social defence development.

RESEARCH AND EVALUATION

Research and evaluation studies, seminars and workshops are being sponsored on social welfare, social policy and social development through a scheme of grants-in-aid for research and publications. Under the scheme, universities/research institutions/professional bodies are given grants to meet the cost of research projects according to approved norms.

WELFARE OF SCHEDULED CASTES AND SCHEDULED TRIBES

Scheduled castes and scheduled tribes have been specified by Presidential orders issued under the provisions of Article 341 and 342 of the Constitution. According to 1981 census, about 23.51 per cent comprised 10.5 crore scheduled castes and 5.38 crore scheduled tribes. In addition some state governments have also specified other categories of people known as other backward classes and denotified nomadic and semi-nomadic communities.

While the Constitution has prescribed certain protective measures and safeguards for these classes, successive Five Year Plans have regarded their progress as a major objective of national policy.

CONSTITUTIONAL SAFEGUARDS

The Constitution prescribes protection and safeguards for scheduled castes, scheduled tribes and other weaker sections either specially or by way of insisting on their general rights as citizens with the object of promoting their educational and economic interests and removing social disabilities. Main safeguards are:

(i) Abolition of untouchability and forbidding of its practice in any from (Article 17);
(ii) promotion of their educational and economic interests and their protection from social injustice and all forms of exploitation (Article 46);
(iii) throwing open by law of Hindu religious institutions of a public character to all classes and sections of Hindus (Article 25b);

(iv) removal of any disability, liability, restriction or condition with regard to access to shops, public restaurants, hotels and places of public entertainment or use of wells, tanks, bathing *ghats*, roads and places of public resort maintained wholly or partially out of state funds or dedicated to use of general public (Article 15 (2));

(v) curtailment by law in the interest of any scheduled tribes of general rights of all citizens to move freely, settle in and acquire property (Article 19 (5));

(vi) forbidding or any denial of admission to educational institutions maintained by the State or receiving grant out of State funds (Article 29 (2));

(vii) permitting the State to make reservation for backward classes in public services in case of inadequate representations and requiring the State to consider claims of the scheduled castes and scheduled tribes in the making of appointments to public services (Articles 16 and 335);

(viii) special representation in the Lok Sabha and state legislative assembly to scheduled castes and tribes till 25 January 2000 (Articles 330,332 and 334);

(ix) setting up of tribal advisory councils and separate departments in states and appointment of a special officer at Centre to promote their welfare and safeguard their interests (Articles 164 and 338 and Fifth Schedule);

(x) special provision for administration and control of scheduled and tribal areas (Article 244 and Fifth and Sixth Schedules), and

(xi) prohibition of traffic in human beings and forced labour (Article 23).

MACHINERY FOR SAFEGUARDS OF SCs AND STs

In pursuance of decisions taken by Cabinet, Government has decided to strengthen the office of Special Officer under Article 338 of the Constitution by providing him with two very senior officers *i.e.*, equivalent to secretary to Government of India, one to look after issues involving scheduled castes and the other to take care of issues concerning scheduled tribes. A disciplinary mechanism has also been provided in the form of a secretary to be positioned in Cabinet Secretariat to take action against defaulting government personnel violating the safeguards provided under the Constitution.

Commission for Scheduled Castes and Scheduled Tribes renamed as National Commission for Scheduled Castes and Scheduled Tribes, will function as an advisory body on broad issues of policies and levels of development of scheduled castes and scheduled tribes. With this objective in view, the Commission may include experts in social anthropology, social work and other related social sciences. Its functions will be:

(a) to study the extent and ramifications of untouchability and social discrimination arising therefrom and effectiveness of present measures and to recommend further measures to be taken;

(b) to study socio-economic and other relevant circumstances leading to the commission of offence against persons belonging to scheduled castes and scheduled tribes and to recommend appropriate remedial measures to ensure prompt investigation of such offences;

(c) to take up studies on different aspects of development of scheduled castes and scheduled tribes with a view to ensuring integration of these groups with the mainstream of society in all aspects. These would include studies in socio-economic development, education, commerce, trade, art, literature, language, housing, communication, agriculture, forestry, horticulture, fisheries, rehabilitation, pollution and environment, and

(d) such other functions as may be entrusted to National Commission for Scheduled Castes and Scheduled Tribes in evolving general policies ralating to any aspect of development of scheduled castes/scheduled tribes as may be thought proper by the Central government.

The Commission shall comprise a chairman and not more than eleven other members. Terms and conditions of chairman and members shall be as determined by Government in each case, provided their term of office shall not normally exceed three years.

LEGISLATION AGAINST UNTOUCHABILITY

For enlarging the scope and making the penal provision more stringent, the Untouchability (Offences) Act, 1955 had been comprehensively amended by the Untouchability (Offences) Amendment and Miscellaneous Provision Act, 1976 which came into force from 19 November 1976. With this amendment, name of the principal Act has been changed to Protection of Civil Rights Act, 1955. The Act provides for penalties for preventing a person, on the ground of untouchability, from enjoying the rights accruing out of abolition of untouchability. Enhanced penalties/punishments have been provided for subsequent offences.

Under the provision of Section 8 of the Representation of the People Act, 1951, a person who is convicted of an offence under the Act is disqualified from contesting elections of Parliament and state legislatures for a period of six years commencing from the date of such conviction.

The PCR Act, 1955 is administered by the state governments. Under a provision of Section 15A (4) of the Act, the Government also places every year, before each House of Parliament, an annual report on the working of the provisions of Section 15A of the Act.

PROTECTION OF CIVIL RIGHTS

In pursuance of the provisions made under Section 15A(2) of the Protection of Civil Rights Act, 1955, Central assistance is given to state governments and union territory administrations. Provisions for legal aid to scheduled caste victims of the PCR Act cases have been made by 20 states. Special cells/squads have been created by 19 states for initiating and exercising supervision over prosecution for contravention of the provisions of the PCR Act. Eighteen states have set up committees at various levels to make periodical review of the problems of untouchability and cases related to it and also suggest various measures for effective implementation of the PCR Act. Fifty two special courts/special mobile courts have been set up in untouchability/atrocity-prone districts of Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Orissa, Rajasthan and Tamil Nadu for expeditious disposal of such cases. Necessary guidelines and instructions are issued to states from time to time for effective implementation of the provisions of the PCR Act. Matching Central assistance is provided to the states for implementation of the PCR Act. Liberation of scavengers by conversion of existing dry latrines has also been taken up under it. One hundred and sixteen towns in 16 states have so far been assisted under the scheme 'whole town approach' in selected towns with the conditions for providing alternative employment to liberated scavengers.

MEASURES TO CHECK ATROCITIES AGAINST MEMBERS OF SC/ST

With a view to effectively dealing with crimes against scheduled castes and scheduled tribes and to tone up administrative machinery to tackle this vital issue, comprehensive guidelines containing precautionary, preventive, punitive and rehabilitative measures exist which states/UTs have to follow. Still these communities continue to be vulnerable and atrocities are committed against them in one form or the other. In order that scheduled castes and scheduled tribes are fully protected from atrocities, Government had enacted the Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989. The Act came into force from 30 January 1990. It specifies the offences which are considered as atrocities and provides for deterrent punishments for commission of the same. The Act also envisages preventive measures and states/UTs have to evolve schemes among other things, for economic and social rehabilitation of such victims.

REPRESENTATION IN LEGISLATURES

Under Articles 330 and 332 of the Constitution, seats are reserved for scheduled castes and scheduled tribes in the Lok Sabha and state legislatures in proportion to their population. This concession initially was for a period of ten years from the commencement of the Constitution. Subsequently, this was extended through amendments up to 25 January 1990. Now the Parliament has passed the Constitution (Sixty second Amendment) Bill, 1989 which seeks to extend the period of reservation of seats for SC/ST and representation of Anglo-Indians by nomination to selected bodies for another ten years beyond 26 January 1990. There is no reservation of seats in the Rajya Sabha and state legislative councils. Table 10.1 gives details of their representation in the Lok Sabha and state legislative assemblies.

RESERVATION IN SERVICES

Article 335 of the Constitution provides that the claims of members of scheduled castes and scheduled tribes shall be taken into consideration, consistent with maintenance of efficiency of administration in making appointment to posts and services in connection with the affairs of the Union or the state. Article 16(4) permits reservation in favour of citizens of backward classes who may not be adequately represented in services. In pursuance of these provisions, Government has made reservations for scheduled castes and scheduled tribes in services under its control.

TABLE 10.1 RESERVATION OF SEATS IN LEGISLATURES
(As on 8 January 1990)

State/	LOK SABHA				Legislative Assembly			
Union Territory	Total	General	SC	ST	Total	General	SC	ST
1 Andhra Pradesh	42	34	6	2	294	240	39	15
2 Arunachal Pradesh	2	2	—	—	60	1	—	59
3 Assam	14	11	1	2	126	102	8	16
4 Bihar	54	41	8	5	324	248	48	28
5. Goa	2	2	—	—	40	39	1	—
6 Gujarat	26	20	2	4	182	143	13	26
7. Haryana	10	8	2	—	90	73	17	—
8. Himachal Pradesh	4	3	1	—	68	49	16	3
9. Jammu and Kashmir	6	6	—	—	76	70	6	—
10 Karnataka	28	24	4	—	224	189	33	2
11. Kerala	20	18	2	—	140	126	13	1
12 Madhya Pradesh	40	25	6	9	320	201	44	75
13 Maharashtra	48	41	3	4	288	248	18	22
14 Manipur	2	1	—	1	60	40	1	19
15. Meghalaya	2	2	—	—	60	5	—	55
16 Mizoram	1	—	—	1	40	1	—	39
17. Nagaland	1	1	—	—	60	1	—	59
18. Orissa	21	13	3	5	147	91	22	34
19 Punjab	13	10	3	—	117	88	29	—
20. Rajasthan	25	18	4	3	200	143	33	24
21. Sikkim	1	1	—	—	32	18	2	12
22. Tamil Nadu	39	32	7	—	234	189	42	3
23. Tripura	2	1	—	1	60	36	7	17
24 Uttar Pradesh	85	67	18	—	425	332	92	1
25 West Bengal	42	32	8	2	294	218	59	17
26. Andaman and Nicobar Islands	1	1	—	—	—	—	—	—
27. Chandigarh	1	1	—	—	—	—	—	—
28. Dadra and Nagar Haveli	1	—	—	1	—	—	—	—
29. Daman and Diu	1	1	—	—	—	—	—	—
30. Delhi	7	6	1	—	56	47	9	—
31. Lakshadweep	1	—	—	1	—	—	—	—
32. Pondicherry	1	1	—	—	30	25	5	—
Total	543	423	79	41	4,047	3,963	557	527

For scheduled castes, reservation is 15 per cent of the vacancies for which recruitment is made by open competition on all-India basis and $16^{2}/_{3}$ per cent of the vacancies to which recruitment is made on all-India basis other than by open competition. For scheduled tribes, reservation is 7.5 per cent in both cases. Reservation in direct recruitment to Group C and D posts which normally attract candidates from one locality or region, is fixed in proportion to the population of scheduled castes and tribes in respective states/UTs.

Reservation is also made at 15 per cent of the vacancies for scheduled castes and 7.5 per cent for scheduled tribes in promotions on the result of competitive examinations limited to departmental candidates in Group B, C and D and in promotion by selection in Group B, C and D and to the lowest rung of Group A in grades or services to which direct recruitment if any, does not exceed 7.5 per cent. Reservation has been provided for scheduled tribes in promotion on the basis of seniority subject to fitness in Group A,B,C and D posts in grades or services to which direct recruitment if any, does not exceed 7.5 per cent.

In promotion by selection within Group A to posts carrying a maximum salary of Rs 5,700 (revised scale 4500-5700) per month or less, scheduled castes and tribes officers who are senior enough to be in the zone of consideration for promotion and are within the number of vacancies for which the select list has to be drawn, are included in that list provided they are not considered unfit for promotion.

To facilitate their adequate representation, concessions such as: (i) relaxation of age limit, (ii) relaxation in the standards of suitabiliity, (iii) selection provided they are not found unfit for the posts, (iv) relaxation of qualifications regarding experience in the case of direct recruitment only, wherever necessary and (v) inclusion of scientific and technical posts up to the lowest grade of Group A required for research in the scheme of reservations, have been provided for. Simultaneously, with notification to employment exchanges or advertisements in newspapers, vacancies and reservations for scheduled castes and scheduled tribes in Group C and D (Class III and IV) posts are announced over All India Radio in areas having a concentration of scheduled castes and scheduled tribes population and notified to voluntary associations of scheduled castes and scheduled tribes population, enlisted for this purpose and to Directors of SC/ST Welfare in the states and union territories. Vacancies filled through Union Public Service Commission otherwise than through examination, are advertised on the first occasion as exclusively reserved for scheduled tribes/castes and are re-advertised if the first advertisement is infructuous. Dereservation of vacancies for direct recruitment in Group A, B, C and D has since been banned. If insufficient number of suitable SC/ST candidates are not available against the share of vacanices reserved for them, the shortfall will not be filled up by general category candidates and such vacancies will be kept unfilled till SC/ST candidates become available. Reservation for scheduled castes and scheduled tribes (including vacancies carried forward) is subject to the ceiling of 50 per cent of the total number of vacancies. This scheme of reservation is also being followed by public sector undertakings. Voluntary agencies which are in receipt of substantial grant-in-aid from Government, are also required, as a condition, to adopt certain specific features of the reservation scheme in their establishments.

To give effect to the reservations, model rosters of 40 points each have been prescribed for direct recruitment by open competition on all-India basis and other than open competition and promotions and 100-point roster for recruitment made on local and regional basis. If the vacancies in a service or cadre are too few for the purpose all isolated posts are grouped together in direct recruitment. Annual statements are required to be submitted by recruiting authorities for scrutiny by Government. For ensuring implementation of special representation orders, liaison officers have been appointed in different Government ministries/departments.

During the period from June to August 1989, a special drive was launched to fill up the huge backlog of vacancies for SC/ST in various Central ministries/departments and public sector undertakings. Another drive initiated in June 1990 is expected to be completed by October.

State governments have also framed rules under the powers given to them by item 41 of the State List of the Seventh Schedule to the Constitution for reservation of posts for these classes and have taken steps to increase their representation in state services. Reservation in state government services however is under the exclusive jurisdiction of state governments.

Representation of scheduled castes and scheduled tribes in Central government services as on 1 January 1989 is given in table 10.2.

TABLE 10.2 SC/ST REPRESENTATION IN CENTRAL GOVERNMENT

Group	Number of Employees	Scheduled Castes	Percentage of Scheduled Castes to Total	Scheduled Tribes	Percentage of Scheduled Tribes to Total
A	61,176	5,204	8.51	1,373	2.24
B	86,018	10,021	11 65	1,720	2.00
C	22,24,212	3,30,330	14 85	1,00,425	4.52
D (Excluding sweepers)	10,92,715	2,23.045	20.41	70,583	6.46
Total	34,64.021	5,68,600	18.24	1,74,101	4.98
ALL INDIA SERVICES[1]					
IAS	4,702	533	11.12	269	5.72
IPS	2,514	282	11.21	124	4.93

1. As on 1 January 1988

WELFARE AND ADVISORY AGENCIES

Ministry of Welfare is the nodal agency for overall policy, planning and coordination of programmes of development of scheduled castes and scheduled tribes. Each Central ministry and department is the model agency concerning its sector. Ministry of Welfare maintains liaison with Central ministries and state governments.

PARLIAMENTARY COMMITTEE

Government had set up three Parliamentary Committees, first in 1968, second in 1971 and the third in 1973, to examine implementation of the Constitutional safeguards for welfare of scheduled castes and scheduled tribes. The Committee has since been constituted as a standing committee of Parliament, tenure of its members being one year.

WELFARE DEPARTMENTS IN STATES

State governments and union territory administrations have separate departments to look after the welfare of scheduled castes and scheduled tribes and other backward classes. Administrative set-up varies from state to state. In Bihar, Madhya Pradesh and Orissa, separate ministers have been appointed to look after tribal welfare as prescribed in Article 164 of the Constitution. Some other states have set up committees of members of state legislatures on the pattern of Parliamentary Committee at Centre.

All states having scheduled areas as also Tamil Nadu and West Bengal, have constituted tribal advisory councils as per provision in the Fifth Schedule to the Constitution to advise on matters pertaining to welfare and advancement of scheduled tribes.

VOLUNTARY ORGANISATIONS

A number of voluntary organisations also promote welfare of scheluled castes and sheduled tribes. Important organisations of all India character are: Harijan Sevak Sangh, Delhi; Indian Red Cross Society, New Delhi; Hindu Sweepers Sevak Samaj, New Delhi; Ramakrishna Mission, Narendrapur; Bharatiya Adimjati Sevak Sangh, New Delhi; Andhra Rashtra Adimjati Savak Sangh, Nellore; Ramakrishna Missions, Cherrapunji, Ranchi, Puri, Silchar, Shillong and Purulia; Bharatiya Samaj Unnati Mandal, Bilvandi in Maharashtra, Thakkar Bapa Ashram, Numakhandi, Orissa; Servants of India Society, Pune, Maharashtra, and Social Work and Research Centre, Tilonia, Rajasthan. Government also provides grants-in-aid to non-official voluntary organisations working among scheduled castes and scheduled tribes.

STRATEGY FOR DEVELOPMENT OF SCHEDULED CASTES

A three-pronged strategy has been evolved to speed up the development of scheduled castes: (a) special component plans of the Central ministries and state governments, (b) special Central assistance to the special component plans for the scheduled castes of the states and (c) scheduled caste development corporations in the states.

Special component plans (SCPs) envisage indentification of schemes under general sector of development which would be of benefit to scheduled castes, quantification of funds from all divisible programmes under each sector and determination of specific targets as to the number of families which are to be benefitted from these programmes under each sector. Overall objective is to assist scheduled caste families to substantially improve their income. Provision of basic services and facilities and access to opportunities for social and educational development are also to be brought into special component plans.

The strategy continued during Seventh Plan. Outlays and expenditure under special component plans during Sixth and Seventh Plans for all states/UTs are as follows:

(Rs crore)

Year/period	Outlay	Expenditure
VI Plan	4,204	3,533
VII Plan	6,303.32 (estimated)	—
1985-86	1,001.03	959.17
1986-87	1,201.62	1,151.63
1987-88	1,450.24	1,330.40
1988-89	1,672.90	—
1989-90	2,052.65 (proposed)	—

Central ministries/departments have also begun to formulate special component plans for scheduled castes. So far only 10 Central ministries/departments have formulated such plans.

SPECIAL CENTRAL ASSISTANCE

Government provides special Central assistance (SCA) to state special component plans for scheduled castes. Special Central assistance is an additive to State Plan and programmes for scheduled castes and it does not follow the systematic pattern for special schemes. It is meant for the totality of state efforts for development of scheduled castes. The additionality, according to states, from the assistance is to be used by them only for income-generating economic development schemes in conjunction with outlays in their special component plans so as to assist economic advancement of the maximum possible number of scheduled caste families living below the poverty line. Assistance is apportioned among state governments and union territory administrations taking into account factors like scheduled caste population, backwardness of states and efforts of state governments. Special Central assistance has helped in motivating state governments to put in larger outlays in their special component plans as shown in table 10.4.

TABLE 10.4 CENTRAL ASSISTANCE

(Rs crore)

Year	State Plan Outlay	SCP Outlay	Percentage	Special Central assistance
1979-80	5,967.03	240.54	4.03	5
1980-81	7,140.31	547.84	7.67	100
1981-82	8,229.31	632.76	7.69	110
1982-83	9,445.49	675.76	7.15	120
1983-84	11,120.80	754.86	6.79	130
1984-85	12,504.38	24.15	7.39	140
1985-86	13,303.56	1,001.03	7.52	165
1986-87	16,222.53	1,201.62	7.41	175
1987-88	19,039.84	1,450.24	7.62	175
1988-89	20,412.50	1,644.56	8.19	180
1989-90	22,343.90	2,066.01 (proposed)	9.19	180

SCHEDULED CASTE DEVELOPMENT CORPORATIONS

With a view to effectively tackling operational aspects involved in implementation of economic programmes for scheduled castes, particularly in mobilisation of institutional credit for income-generating schemes, Government decided in 1978-79 the establishment of scheduled caste development corporations (SCDCs) in states which have significant population of scheduled castes. At present, 21 such corporations are functioning in the country. The corporations were envisaged as an interface between SC families and financial institutions in respect of bankable schemes of economic development. They were also required to function as guarantors and promoters and to act as a catalyst by providing missing inputs by way of contributing seed money or margin money loans to scheduled castes entrepreneurs. Margin money loans are intended to help in a number of ways. By sharing the loan burden with financial institutions, the corporations help in demonstrating the involvement inducing banks to come forward with loans for schemes for scheduled castes in a big way.

While there is a large number of financial institutions to finance the ventures of those who can afford to start industries, business, etc., there are no institutions which can support poor SC families living below the poverty line. This responsibility has been entrusted to SC development corporations.

Under this scheme, Government is participating in the share capital investment of these corporations at the rate of 49 per cent as against 51 per cent investment by state governments. Share capital is intended to be used towards margin money loans. The scheme was amplified in July 1981 to include assistance for promotional activities and staff for monitoring, evaluation, technical and recovery wings. Grant-in-aid for promotional activities is subject to a maximum of one per cent and for staff for monitoring and evaluation-subject to three per cent of Centre's cumulative share capital contribution to a corporation. Central grant for those purposes can be availed of by state governments, provided matching share is also contributed by them.

Total expenditure by Government and states/UTs from 1978-79 to 1988-89 including matching assistance for promotional activities, etc., is shown in table 10.5

TABLE 10.5 GRANT FOR SCHEDULED CASTE DEVELOPMENT CORPORATIONS

(Rs lakh)

Plan	Central share	State share
I. Fifth Plan (1978-79 to 1979-80)	1,274.00	1,413.65
II. Sixth Plan (1980-85)	6,883.34	7,455.29
III. Seventh Plan		
1985-86	1,500.00	1,755.21
1986-87	1,458.56	1,982.15
1987-88	1,300.00	1,488.52
1988-89	1,000.00	NA

Budget provision during 1989-90 for Government contribution to share capital of corporations and for grant-in-aid for matching assistance was Rs 10 crore.

Scheduled caste development corporations have been set up to render economic assistance to poor scheduled caste families to enable them to cross the poverty line. These are service-oriented organisations instead of profit making ones. Recoveries made from margin money loans given by these corporations are re-invested in giving margin money loans to more beneficiaries.

During Sixth Plan, the corporations assisted over 28.69 lakh SC families. Total finance generated by them was Rs 578 crore. Margin money loans amounting to Rs 106.69 crore were able to attract bank loans worth Rs 370.84 crore. In addition, the corporations disbursed subsidy amounting to Rs 100.50 crore.

During the first four years of Seventh Plan, SCDCs were able to economically assist 22.66 lakh SC families. As per available information, SCDCs arranged margin money loans amounting to Rs 115.68 crore during this period. This enabled them to secure bank loans worth Rs 497.71 crore. In addition, SCDCs disbursed subsidy amounting to Rs 283.35 crore. Total assistance given was Rs 905.25 crore.

Every SCDC is free to finance schemes with a unit cost not exceeding

Rs 35,000. Any scheme costing more than this is required to be submitted to Government for prior approval.

Task of monitoring and on-going evaluation of these corporations has been entrusted to Agricultural Finance Corporation (AFC) which set up a special cell in Delhi for this purpose in June 1982. National Scheduled Caste and Scheduled Tribe Finance and Development Corporation has been set up by Government to enhance credit flow to SC/ST in all sectors including industry. During Eighth Plan it will serve as an apex institution to finance schemes for economic development of SC/ST.

CENTRALLY-SPONSORED SCHEMES

Some important Centrally-sponsored schemes are:

COACHING AND ALLIED SCHEME FOR SC/ST CANDIDATES

Objective of this scheme is to improve representation of scheduled caste and scheduled tribe candidates in various posts/services in Central/state government/public undertakings by providing them pre-examination training for various competitive examinations like IAS, IPS and other Central and state service examinations, bank competitions, LIC, GIC, NDA, CDS, etc. This is a two-tier scheme. Pre-examination training centres run by states/UTs are financed by Central and state governments on 50:50 basis. Centres run by universities/institutions, etc., are financed by Centre on cent per cent basis. At present 103 pre-examination training centres have been set up.

During 1988-89 Rs 68.00 lakh was released to states/UTs, universities and private institutions. Rs 70.00 lakh had been provided in 1989-90. During 1987-88, 15,450 SC/ST candidates were trained by pre-examination training centres including those run by Staff Selection Commission for various competitive examinations. Forty eight SC/ST candidates were finally selected for appointment in Civil Services Examination 1988. Arrangements have been made to provide coaching to such candidates for entrance examination for admission in medical/engineering colleges soon. In Delhi this work has been entrusted to a reputed private institution for providing coaching to 200 SC/ST candidates. States/UTs are to provide computer training to SC/ST candidates for better employment opportunities.

GIRLS HOSTEL SCHEME FOR SCHEDULED CASTES

Under this scheme Central assistance is provided to state governments/union territories on 50:50 matching basis for the construction of hostel buildings, with a view to providing hostel facilities to scheduled caste girls studying in middle and higher level of education.

Central grant is also given to voluntary organisations through concerned state governments for needful extension of existing hostel buildings. In this case ten per cent of the total cost is to be borne by the organisation and remaining 90 per cent is to be shared between Central and state government on 50:50 basis. In such a hostel up to 100 inmates can be accommodated. Of this ten per cent seats are reserved for non-SC/ST. Expenditure on maintenance of these hostels is to be borne by state governments out of their own funds.

An amount of Rs 381.53 lakh was sanctioned for this scheme during 1988-89 for construction of 83 hostels for 5,475 inmates while Rs 350 lakh provided in 1989-90.

BOOK BANK SCHEME

This scheme is intended for scheduled caste and scheduled tribe candidates pursuing medical and engineering degree courses. A set of text books costing Rs 5,000 is given to a group of three students, life period of the set being three years.

During 1988-89 Rs 47.75 lakh was sanctioned to various states/UTs for 23,007 SC/ST students. Rs 55.00 lakh were provided for this scheme in 1989-90.

BOYS HOSTELS FOR SC/ST

The Centrally-sponsored scheme of girls hostels has been extended to SC/ST boys also from 1989-90. A token provision of Rs 50.00 lakh was made for this scheme during 1989-90. Rupees eight crore has been provided for this scheme during 1990-91.

POST-MATRIC SCHOLARSHIPS FOR SC/ST STUDENTS

The scheme of post-matric scholarships to SC/ST was started in 1944-45 with the objective of providing financial assistance to students studying at post-matriculation stages in different schools and colleges so as to enable them to complete their education. Beginning with a mere 114 awards to scheduled caste students in 1944-45 and 89 for scheduled tribe students in 1948-49, number of awards to them had reached 9.74 lakh in 1985-86. The number of awards in both these categories together increased to 11.79 lakh in 1987-88 and 13 lakh during 1988-89. It was to reach 14 lakh during 1989-90. Keeping in view rising cost of living and other factors, rates for all courses and income limits of parents/guardians/wards for eligibility of scholarships have also been revised from 1 July 1989. From 1988-89, employed students with a total income of Rs 1,500 per month are made eligible for scholarships, restricted to reimbursement of compulsory non-refundable dues/fees, etc. Reimbursement of non-refundable fee is permissible from 1 July 1989 for students pursuing recognised correspondence courses including continuing and distance education within the country.

RESEARCH AND TRAINING

Government provides cent per cent financial assistance to reputed social science research agencies/institutions which have a proven expertise in studies on economic development, problems and requirements of scheduled castes and also on the impact of implementation of various economic programmes undertaken by governmental bodies. Studies which come out with practical recommendations and need immediate remedial action are considered for financial assistance under the scheme.

SCHOLARSHIPS FOR SC/ST STUDENTS

Ministry of Welfare has been implementing Government of India's National Overseas Scholarships and Passage Grants for students belonging to scheduled castes, scheduled tribes and other students. It is in operation since 1954-55. Objective of the scheme is to provide adequate financial assistance and facilities for meritorious students belonging to scheduled castes. scheduled tribes and a few other similarly situate socially and economically backward groups who are citizens of India and do not have means to go abroad for higher studies especially in respect of those subjects for which facilities are either not available in India or are inadequate within the country, namely, subjects relating to science and technology.

Scholarships are provided for studies at Post-graduate and Ph.D. Post-doctoral research levels. No scholarship is now available for subjects and fields concerned with Indian studies, agriculture and allied subjects, veterinary science and medical sciences. During Sixth Plan, number of awards available for each year was 21. It increased to 25 from 1985-86.

According to existing pattern of the scheme value of scholarships includes: (a) maintenance allowance US $ 7,000 and US $ 6,000 per annum for Post-doctoral and Ph.D. studies, respectively; (b) contingency allowance (for purchase of books, study tours, etc.). US $ 350 per annum, and (c) equipment allownace of Rs 1,000 and journey allowance.

In addition scholars are also entitled to the cost of passage both ways, train fare, actual cost of admission, tution fees, examination and other compulsory fees and medical health insurance premium. All expenditure on scholars in connection with their studies/stay is borne by Government.

PRE-MATRIC SCHOLARSHIPS

The scheme which began in 1977-78, is intended for educational development of children of those who are engaged in the so-called unclean occupations, *viz.*, scavenging of dry latrines, tanning, flaying and sweeping, studying in classes VI to X. A scholarship of Rs 200 and Rs 250 per month is given to each student studying in classes VI to VIII and IX to X respectively.

LIBERATION OF SCAVENGERS

Under this scheme financial assistance is provided to states on 50:50 basis for conversion of dry latrines into water-pour sanitary latrines. Displaced scavengers are rehabilitated in alternative employment simultaneously. Rehabilitation is funded under special Central assistance to state governments. So far about 3.10 lakh dry latrines have been converted into water-pour latrines in 19 states, more than 10,000 scavengers rehabilitated and 32 towns made scavenger free.

DEVELOPMENT OF SCHEDULED TRIBES

Two hundred and fifty eight communities speaking about 106 languages have been notified as scheduled tribes in 26 states/union territories. They are scattered all over the country. Amongst them are groups as large as about 51 lakh and as small as 28.

Tribal development is based on a two-pronged strategy, namely, (i) promotion of development activities to raise level of living of scheduled tribes and (ii) protection of their interests through legal and administrative support. Tribal sub-plan evolved for tribal development during Fifth Plan, presently covers 17 states and two union territories. It is implemented through 191 integrated tribal development projects covering 303.41 lakh ST population, 268 MADA pockets with population of 45.82 lakh, 76 clusters of tribal concentration with 3.43 lakh and 74 primitive tribal groups with about 16.36 lakh population.

Tribal sub-plan is being implemented through financial resources drawn from: (a) state plan, (b) special Central assistance, (c) sectoral programmes of Central ministries/departments and (d) institutional finance. As against an investment of Rs 1,100 crore during Fifth Plan period, investment for Sixth Plan was of the order of Rs 5,535 crore and during Seventh Plan it was expected to reach Rs 10,500 crore.

Working Group on Development and Welfare of Scheduled Tribes for Eighth Five Year Plan has recommended new arrangements for quantification of funds under Tribal sub-plan.

Outlays for TSP in state plans will be earmarked separately and given to Tribal Development Department. These will be allocated to state sectoral departments looking to plans/schemes prepared by them for development of scheduled tribes.

Twenty-point Programme continues to focus greater attention on development of scheduled tribes. During Sixth Plan period (1980-85), 39.65 lakh families as against the target of 27.60 lakh were economically assisted to enable them to cross the poverty line. For Seventh Plan period (1985-90), 40 lakh tribal families were targetted to be provided economic assistance. In the first four years of Seventh Plan period 42.64 lakh families had been assisted.

TRIBAL RESEARCH INSTITUTES

Tribal research and training institutes have been functioning in Andhra Pradesh, Assam, Bihar, Gujarat, Kerala, Madhya Pradesh, Manipur, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, Tamil Nadu and West

Bengal. They play a useful role in formulation of Tribal sub-plan, project reports, monitoring and evaluation of programmes implemented for scheduled tribes and organising of training programmes for personnel.

TRIFED

For marketing of tribal produce especially minor forest produce and to eliminate private traders exploiting poor tribals, Tribal Cooperative Marketing Development Federation (TRIFED) has been set up. It has been registered under the Multi-State Cooperative Societies Act, 1984. It operates through state federations which are its constituent members. The Federation had gradually expanded its commercial operations to several items of tribal produce. From 1988-89 **TRIFED** has undertaken procurement of surplus agricultural produce in tribal areas as an agent of Food Corporation of India and it has also been appointed as procurement agency for coarse grains and oilseeds from tribal areas.

Seven marketing and service extension centres are being exclusively set up in tribal areas by Government for marketing tribal handicrafts. Assistance and support will also be provided in marketing of tribal handicrafts even in some centres located in non-tribal areas.

VOLUNTARY ORGANISATIONS

Ministry of Welfare provides financial assistance on cent per cent basis to voluntary organisations of all India nature engaged in development of scheduled tribes. Grants are given to them for undertaking schemes, namely, running of *Balwadis*, creches, hostels, schools and training-cum-production centres. During 1988-89, 28 voluntary organisations were given financial assistance worth rupees one crore.

WELFARE OF MINORITIES

To uphold the ethos of the Indian Constitution and to maintain its distinctive character of having a secular and egalitarian society, provisions were made to safeguard interests of minorities whether based on religion or language. In order to maintain a constant vigil and review implementation of Constitutional safeguards to different groups of minorities, besides appointing special officers under Article 350B of the Constitution, Minorities Commission has been constituted.

Minorities Commission is one such body appointed in 1978. The Commission has a chairman and other members belonging to different minority communities. Among the functions entrusted to the Commission are evaluation of the working of various safeguards provided in the Constitution; making recommendations to ensure effective implementation of safeguards; reviewing of implementation of policies pursued by the Union and state governments; looking into specific complaints regarding deprivation of rights and safeguards; making surveys and research; suggesting approppriate legal and welfare measures in respect of any minority, and submission of periodical reports to Government.

Special Officer for Linguistic Minorities also commonly called as Commissioner for Linguistic Minorities appointed under Article 350 B of the Constitution investigates all matters relating to safeguards provided for linguistic minorities. He also looks into representations and complaints received from various associations and individuals belonging to linguistic minorities for redressal of their grievances.

Government established a special cell, Minorities Cell, in 1983 in accordance with a 15-point programme enunciated by the Prime Minister. This programme is administered by Ministery of Welfare and is implememted through state governments and union territory administrations and Central departments/ministries with the help of machinery operated by the nodal officers appointed for the welfare of minorities. Minorities Cell of Union government ensures fuller participation of minorities in all aspects of national life for coordinating and monitoring implementation of the 15-point programme and for expeditious action of minority grievances. Some of the states/UTs have also set up minority cells. Monitoring of the programme is regularly carried out by Government on the basis of information received from states/UTs. The 15-point programme broadly aims at prevention of communal violence and promotion of communal harmony; laying special emphasis on educational needs of minorities; according special consideration to the minorities in the matter of recruitment to services especially in state and Central police force, and ensuring fair and adequate share to minorities in benefits flowing from various development programmes.

WAKFS

Wakfs are permanently dedicated movable or immovable properties for any religious, pious or charitable purpose recognised by Muslim law. Wakfs are in fact instruments of social good. Better management of these institutions and fuller realisation of their objectives contribute to development and progress of the society.

THE WAKF ACT, 1954

Administration of Central legislation for Wakfs, *i.e.*, the Wakf Act. 1954, is the responsibility of Ministry of Welfare. This Act however does not extend to the states of Jammu and Kashmir and Sikkim. It is not in force in Uttar Pradesh and West Bengal who have their own Wakf laws. Parts of Gujarat and Maharashtra are also not governed by the Central Act. The Wakf Act, 1954 envisages a decentralised set-up. While *Mutawallia* (Manager) of each individual wakf retains his autonomy in discharge of his responsibilities, general superintendence of all wakfs in a state vests in the Wakf Board, set up by each state government, which has to ensure that the wakfs are properly maintained and administered and that their income is duly applied to objects for which such wakfs were created. The Board has its own office and staff and its own funds composed of a statutory contribution realised from different wakfs.

Overall supervision of the Wakf Board vests in state government which, apart from appointing members of the Board and its secretary, also receives the annual budget of the Board and appoints auditors for auditing its accounts. It also has powers to issue directions to the Board and in certain cases supercede it. Central government has powers to issue directions to a Board on matters of policy. Central government is advised on matters relating to administration of wakfs by a statutory body known as Central Wakf Council which is headed by Union Minister incharge of the subject of Wakf.

In order to further strengthen administration of wakfs, an amending legislation known as the Wakf (Amendment) Act, 1984 has been passed. Two provisions of the amended Act have already been enforced and the question of enforcement of the other provisions is under active consideration of Central government.

With a view to augmenting financial resources of individual wakfs/wakf boards, Central government gives an annual grant-in-aid to Central Wakf Council for extending loan assistance for development of urban wakf properties.

Up to 31 March 1989, Central government had given Rs 573.64 lakh to the Central Wakf Council as grant-in-aid. The provision during 1989-90 was Rs 63 lakh. So far 55 developmental projects have derived benefit from this scheme, of which 16 have already been completed. Central government also assists wakf boards through state governments in solving problems of common concern.

DURGAH KHWAJA SAHEB, AJMER

The internationally famous wakf, namely, Durgah of Hazrat Khwaja Moinuddin Chishti at Ajmer is governed by the Durgah Khwaja Saheb Act, 1955. This endowment is managed by a Centrally–appointed committee known as Durgah committee which is assisted by an officer known as *Nazim*. The committee has its own funds; and among other things, looks after welfare of dovotees visiting the Durgah. It runs two dispensaries and has constructed six multi-storeyed guest-houses to provide accommodation at economical rates to pilgrims.

PUNJAB WAKF BOARD

Ever since the reorganisation of the erstwhile composite State of Punjab in 1966, Punjab Wakf Board continues to be an inter-state body corporate functioning in the areas which now comprise the reorganised states of Punjab, Haryana and Himachal Pradesh, and Union Territory of Chandigarh. Therefore, from 1966 onwards powers of state governments under the Wakf Act, 1954 have from time to time been assumed and exercised by Central government.

Punjab Wakf Board has been reconstituted by Central government from time to time with members drawn from all regions concerned. The Board is under supersession since November 1981. Central government has appointed an administrator to manage and look after the affairs of the Board.

There has been considerable improvement in almost all activities of the Board. Finances have also increased considerably during the last few years. With increase in its income, the Board also expanded its welfare activities. Apart from payment of salaries to *imams* and *muazzins*, caretakers, etc., the Board has been assisting widows/destitutes and also giving scholarship/financial assistance to needy students.

WOMEN AND CHILD DEVELOPMENT

Allround development of women and children constitutes an important component of human resources development. Hence, these two target groups are given special treatment in addition to benefits they derive from general developmental programmes in the country. In order to revitalise the existing developmental programmes for women and children, a separate Department of Women and Child Development was set up under the newly created Ministry of Human Resource Development in September 1985. Prior to this, it formed a part of Ministry of Social and Women's Welfare. Responsibility of implementing welfare and development programmes for women and children is shared between Centre and state governments. Centre is responsible for formulating policies and programmes besides coordinating, guiding and promoting implementation of various programmes by Central ministries/departments, state governments and voluntary sector. Major thrust of the programmes of the Department is on ensuring well being of women and children particularly those of the weaker sections of society through integrated programmes.

The Department has two bureaux: (i) Nutrition and Child Development Bureau and (ii) Women's Development Bureau. Further, the Department has two organisations under it, namely, (i) National Institute of Public Cooperation and Child Development (NIPCCD) and (ii) Central Social Welfare Board (CSWB).

Bureau of Nutrition and Child Development is responsible for overall policies and coordination of child development besides implementing programmes for welfare and development of children. Women's Welfare and Development Bureau is entrusted with responsibility of coordinating women's welfare and development programmes besides implementing programmes for welfare and development of women. NIPCCD is a society, registered under the Societies Registration Act, 1860. NIPCCD is an autonomous organisation which has its headquarters in New Delhi under Department of Women and Child Development. It has three regional headquarters at Guwahati, Lucknow and Bangalore. Objectives of NIPCCD are to: develop and promote voluntary action in social development, take a comprehensive view of child development and promote programmes in pursuance of National Policy for Children and also evolve framework and perspective for child and women development through governmental and voluntary efforts.

To achieve these goals, the Institute conducts research and evaluation studies, organises training programmes, seminars, workshops, conferences and provides documentation and information services in child development. It is the apex body for training of functionaries of Integrated Child Development Services (ICDS) programme. It also functions as the technical arm of the Department of Women and Child Development.

CSWB is a company under the Indian Companies Act, 1956. It is an autonomous organisation under the Department and is working for welfare and development of women, children and handicapped. The Board has evolved various programmes for sustaining growth of voluntary organisations and providing them financial assistance for taking up a variety of welfare and development programmes.

The Board has been successful in harnessing services of over one lakh voluntary workers and thousands of voluntary organisations spread all over the country. Important programmes implemented by the Board are: (i) condensed courses of education and vocational training programme for women; (ii) socio-economic programme; (iii) general grants-in-aid programme; (iv) *mahila mandal* programme; (v) holiday camp programme; (vi) voluntary action bureau/family counselling centres, and (vii) awareness generation projects for rural and poor women, etc.

FINANCIAL INVESTMENT

Financial allocation for the Department has more than trebled from Sixth Plan to Seventh Plan. Expenditure for Sixth Plan was Rs 219 crore. Outlay for Seventh Plan was Rs 740.62 crore. Plan outlay for 1989-90 was Rs 261 crore and non-plan outlay Rs 17.18 crore.

CHILD DEVELOPMENT

NATIONAL POLICY FOR CHILDREN

National Policy for Children was adopted on 22 August 1974. The Policy describes country's children as 'supremely important asset'. It enjoins on the State to provide adequate services to children both before and after birth and through the period of growth to ensure their full physical, mental and social development.

It forms the bed-rock of child development strategies and implementation of various programmes designed for development of children.

NATIONAL CHILDREN'S BOARD

National Children's Board was set up on 3 December 1974. The Board is headed by Prime Minister as chairman and has Minister of Human Resource Development as vice chairman. Functions of the Board are to: (i) plan and review implementation of programmes for welfare and development of children; (ii) coordinate efforts made by different governmental and private agencies in implementing programmes for welfare and development of children; (iii) locate gaps in the existing services and suggest measures to eliminate such gaps; (iv) suggest from time to time, any changes needed in priorities accorded to different programmes, and (v) act as high-powered national body to symbolise the commitment of the nation to welfare and development of children. The Board serves as a national forum for interaction between voluntary agencies and the Department.

PROGRAMMES OF NUTRITION AND CHILD DEVELOPMENT BUREAU

INTEGRATED CHILD DEVELOPMENT SERVICES

The Department's main programme for children is Integrated Child Development Services (ICDS) programme, which is a Centrally-sponsored scheme. The scheme adopts a multi-sectoral approach to child development and is acknowledged as the largest child development programme in the world. It was launched in 1975. Objectives of ICDS are: (i) improving nutritional and health status of children in the age group 0-6; (ii) laying foundation for proper psychological and social development of child; (iii) reducing incidence of mortality, morbidity, malnutrition and school dropouts; (iv) achieving effective coordination of policy and implementation among various departments to promote child development, and (v) enhancing capability of mother to look after normal health and nutritional needs of child through proper health and nutrition education.

Strategy adopted in ICDS programme is integrated delivery of following services to children below six and pregnant and nursing mothers: (i) supplementary nutrition; (ii) immunization; (iii) health check-up and referral services; (iv) non-formal pre-school education to children (3-6), and (v) nutrition and health education to women.

ICDS projects have been taken up in selected blocks in the most backward rural and tribal areas and urban slums.

Based on positive results shown by independent evaluation studies and response from state governments, the programme has been expanded quickly and there are at present 2,236 Centrally-sponsored ICDS projects including 500 additional projects sanctioned for 1989-90. There are also 202 ICDS projects in state sector. Total number of projects sanctioned was 2,438. One hundred more projects are slated for 1990-91.

In 1989-90, provision made for ICDS was Rs 191.08 crore. This accounts for all components of projects' expenditure except nutrition which is funded by state governments. As far as nutrition is concerned Cooperative for American Relief Everywhere (CARE), World Food Programme (WFP) and Centrally-sponsored wheat-based nutrition programme take care of the needs of states to the extent of about 70 per cent.

Several evaluation and research studies of ICDS programme have been conducted by independent authorities. These speak of beneficial results which are: (i) $^{2}/_{3}$ population covered by ICDS comprises SC, ST and other backward communities; (ii) ICDS has been able to cross income barriers and reverse the usual trend of higher income groups availing more benefits; (iii) ICDS areas registered significant decline in the incidence of severe malnutrition; (iv) immunization coverage of children in ICDS project areas was substantially higher than coverage in non-ICDS areas, sometime even three or four fold, and (v) decline in infant mortality and birth rates and greater acceptance of family planning in ICDS areas.

CRECHES/DAY-CARE CENTRES FOR CHILDREN

Central scheme of creches for children of poor working and ailing women is implemented through voluntary organisations. The Department provides grants to Central Social Welfare Board which, in turn, assists voluntary organisations to implement the scheme. It envisages day-care services for children of the age group 0-5. Services include health care, supplementary nutrition, sleeping facilities, immunization and play and recreation for children. Two creche workers are employed to look after children. Recently this Department has started providing grants directly to two national level organisations, namely, Indian Council for Child Welfare and Bharatiya Adimjati Sevak Sangh.

The Scheme was started in 1975-76 with 247 creche units covering 6,175 children. The scheme has expanded since then and it now covers 11,841 creche units with 2,96,000 beneficiaries. It has been quantitatively improved in a big way. Training of creche workers was initiated in 1986-87.

Institutional supervision of creche programme was started in 1987-88 in three states only *viz.*, Kerala, Maharashtra and Tamil Nadu. Now it extends to 12 states/UTs.

EARLY CHILDHOOD EDUCATION

Early childhood (pre-school) education (ECE) programme was launched in Sixth Plan as a distinct strategy to reduce dropout rate and improve the rate of retention of children in schools. ECE is designed to improve children's communication (language) and cognitive (social, emotional, intellectual and personality development) skills as a preparation for entry into primary school. Under the scheme, Central assistance is given to voluntary organisations to run early childhood education centres in rural and backward areas.The progrmme is for implementation in nine educationally backward states, *viz.*, Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal.

Early childhood care and education (ECCE) has been accorded high priority in New National Policy on Education. In 1987-88, this scheme was transferred from Department of Education to Department of Women and Child Development.

ECE programme expanded dramatically after the transfer. From 1,100 centres in 1986-87, it expanded to 4,300 by 1987-88. Due to budgetary constraints, it did not expand in the last two years. All these centres are in operation at present.

WHEAT-BASED SUPPLEMENTARY NUTRITION PROGRAMME

Centrally-sponsored scheme of Wheat-Based Supplementary Nutrition for pre-school children and nursing and expectant mothers was introduced from 1 January 1986 with a view to making use of surplus wheat stocks to improve nutritional status of children and mothers belonging to weaker sections. This programme is meant to expand the existing supplementary feeding services by covering additional beneficiaries. Central assistance for the programme comprises supply of free wheat and supportive costs for other ingredients, cooking, transport, etc. Another segment of this programme provides wheat to state governments subsidising it to the extent of $^1/_3$. Government assistance has been provided for 33 lakh beneficiaries under this scheme. In 1989-90, Rs 28 crore had been provided for the programme.

In 1989-90, there were two major developments. State funded component of the programme has been dropped. In its place, state governments are now being given wheat at the wheat issue price fully paid by them. Also the programme is now sought to be completely aligned with ICDS.

BALWADI NUTRITION PROGRAMME

Balwadi nutrition programme is being implemented since 1970-71 through five national level voluntary organisations, namely, Central Social Welfare Board, Indian Council for Child Welfare, Harijan Sevak Sangh, Bharatiya Adimjati Sevak Sangh and Kasturba Gandhi National Memorial Trust. Grant-in-aid under this programme is given towards honorarium for *balsevikas*/helpers and supplementary feeding of children. About 5,045 balwadis are being run by these organisations. Children in the age group of 3-5 (2.29 lakh) are covered under this programme. Supplementary nutrition consisting of 300 calories and 10 grams of protein per child per day is given for 270 days a year, besides social and emotional development of children.

CARE-ASSISTED NUTRITION PROGRAMME

Department of Women and Child Development has the nodal responsibility for CARE assistance in India, administering the Indo-CARE Agreement of 6 March 1950.

CARE gives food commodities for supplementary nutrition for pre-school children and nursing/expectant mothers by providing 1,85,170 mt food commodities (soya salad oil, corn soya milk and bulgar wheat) in a year to cover 72,71,700 beneficiaries under pre-school feeding in ten states, *viz.*, Andhra Pradesh, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, West Bengal and Uttar Pradesh. In addition, non-food projects known as integrated nutrition and development projects are also funded by CARE in Karnataka, Madhya Pradesh, Orissa and Rajasthan. For this, CARE has allocated funds generated by monetisation of 8,000 mt of oil. These funds about Rs 12 crore-will be spent for ICDS-related non-food projects in Andhra Pradesh, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and West Bengal.

WORLD FOOD PROGRAMME

World Food Programme (WFP) extends food aid for supplementary nutrition of children below six, pregnant women and nursing mothers. Under this programme, 21.20 lakh beneficiaries comprising 19.08 lakh pre-school children and 2.12 lakh mothers in states (Assam, Kerala, Madhya Pradesh, Rajasthan and Uttar Pradesh) receive assistance. About 15 lakh of these beneficiaries are in these areas. During phase V, from January 1990 WFP will also extend partial assistance for two innovative pilot schemes, namely, (i) construction of buildings of 660 *anganwadi* centres and (ii) training and involvement of adolescent girls in ICDS activities.

WORLD BANK ASSISTED PROJECTS

Tamil Nadu Integrated Nutrition Project (TINP) is being implemented since 1980-81 covering ten districts of Tamil Nadu.

Number of beneficiaries covered is 6,28,610 children (6-36 months) and 2,45,534 pregnant and nursing mothers in 173 rural blocks. The project is assisted by World Bank. The programme aims to improve nutrition and health status of children below three and pregnant and nursing mothers. First phase of the Project was completed in September 1988, the phase-II is proposed to be taken up in 1990-91 covering the entire state.

In order to expand ICDS rapidly and also stengthen its content. there is a proposal to seek assistance from World Bank for an extensive multi-state ICDS project to cover backward areas in Andhra Pradesh, Bihar, Madhya Pradesh and Orissa.

UNICEF

The Department is the nodal agency for UNICEF assistance in India. Under the agreement. UNICEF has allocated financial assistance from its general resources 1,750 lakh US dollars and 523 lakh US dollars from supplementary resources for a six-year period. For ICDS, annual UNICEF assistance is about Rs 8 crore against Government's own plan allocation of about Rs 191.08 crore.

BALSEVIKA TRAINING PROGRAMME

Balsevika training programme was started in 1961-62 to meet requirement for trained personnel for institutions implementing welfare programmes for school children. Balsevika is a multi-purpose worker at field level. She is trained to have a close understanding of the basic needs of the child. The Balsevika training course for 11 months duration is conducted entirely through Indian Council for Child Welfare (ICCW) with cent per cent financial assistance from Government. There are 25 Balsevika training centres in the country.

TOY BANK

'Toy Bank' scheme was launched all over the country on the Universal Children's Day, 14 November 1986. Under the scheme, toys are collected in schools from children and re-distributed amongst anganwadis, balwadis, creches, day-care centres, etc. The scheme is gaining momentum in several states.

NATIONAL AWARDS FOR CHILD WELFARE

National awards for child welfare scheme was instituted in 1979, Year of the Child, as a State recognition of voluntary action in the cause of the child. Presently there are five awards for institutions and three for individuals annually for best work done in the field of child welfare, Rs 2 lakh in cash and a citation for the awardee instituion and Rs 30,000 in cash and a citation for the awardee individual.

WOMEN DEVELOPMENT

Women's Development Bureau is directly responsible for welfare and development of women in the country. Activities of the Bureau include formulation of policies, plans and programmes, enacting/implementing various social legislations relating to women and implementing certain welfare and development programmes for women. Some important achievements in the field of women's development are:

LEGISLATIVE MEASURES

The Equal Remuneration Act (ERA) was passed in 1976 to provide for payment of equal remuneration to men and women for same type of work and to prevent discrimination on ground of sex against women in employment. A bill to amend the ERA to prevent discrimination against women both at the time of recruitment and after was introduced and passed in December 1987.

The Suppression of Immoral Traffic in Women and Girls Act, 1956 which was amended in 1978 was again amended in 1986 in order to make the provisions of the Act more effective and stringent and also to extend the scope of the Act to cover all persons whether male or female, who are exploited sexually for commercial purposes. The Act is now called the Immoral Traffic (Prevention) Act, 1956.

The Dowry Prohibition Act, 1961 was amended in 1984 and again in 1986 in order to make the offence congnizable, to enhance penalty of both fine and imprisonment and to widen the scope of the Act to make it more effective.

The Indecent Representation of Women (Prohibition) Act, 1986 seeks to prevent indecent display of women through advertisements, books, posters, etc.

The Commission of Sati (Prevention) Act, 1987 was a landmark legislation to prohibit commission of *sati.* It provides for more effective prevention of the commission of sati and its glorification. Punishment of any act of glorification of sati is imprisonment for a term which shall not be less than one year but which may extend to seven years and with fine which shall not be less than Rs 5,000 but which may extend to Rs 30,000.

Criminal laws, namely, the Indian Evidence Act, the Indian Penal Code and the Criminal Procedure Code were amended to make penal provisions against the offence of rape and other such crimes against women, more stringent and also to make a new provision in the Indian Penal Code to make cruelty against women by husband and other relations punishable. The onus of proof of innocence in such cases would rest on the accused. Consequential amendments arising out of the Dowry Prohibition (Amendment) Act, 1986, were carried out in the Cr. P.C. and the Indian Evidence Act. A new offence 'dowry death' has been included in the Indian Penal Code.

The Family Courts Act was passed in 1984 for setting up of family courts in the country with a view to promoting conciliation in and securing speedy settlement of disputes relating to marriage and family affairs and for matters connected therewith.

WOMEN'S DEVELOPMENT CORPORATIONS

A new scheme for assisting the setting up of women's development corporations (WDCs) in all the states has been launched. Identification of women as individuals or in groups, preparation of viable projects, facilitating training, credit and marketing, etc., are some functions to be carried out by the proposed corporations. Besides Tamil Nadu, WDCs have been set up in Kerala, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Punjab, Chandigarh, Madhya Pradesh, Uttar Pradesh and Manipur.

HOSTELS FOR WORKING WOMEN

To provide cheap and safe accommodation for working women belonging to low income group, a scheme of construction/expansion of hostel buildings was started in 1972. The scheme was modified in 1980 to provide assistance for day-care centre for children attached to working women's hostels. It provides assistance to voluntary organisations to the extent of 50 per cent of the cost of land and 75 per cent of the cost of construction of buildings. Assistance is also admissible for purchase of ready-built buildings. Working women drawing consolidated emoluments up to Rs 2,500 per month are eligible for accommodation in hostels assisted by the Department. A resident can stay in a hostel for a period of three years, extendable up to five years. Since the inception of the scheme in 1972-73, 560 hostels have been sanctioned to provide accommodation to 35,785 working women with day-care centre facilities for 4,865 children in 186 hostels. Eighth Plan envisages setting up of additional 1,000 hostels for 35,000 working women.

EMPLOYMENT AND INCOME-GENERATING PRODUCTION UNITS

This programme was started in 1982-83 to train women belonging to weaker sections and provide them employment on sustained basis. The programme is implemented through public sector undertakings/ corporations/autonomous bodies/voluntary organisations. Assistance for the programme comes from Norwegian Agency for International Development (NORAD).

TRAINING CENTRES FOR REHABILITATION OF WOMEN IN DISTRESS

With the object of training destitute women in the age group 18-50 in marketable skills, a scheme for setting up rehabilitation centres began in 1977. Training is provided on residential and non-residential basis as per requirement. The scheme envisages training in both traditional and non-traditional trades for a period of not more than one year.

It is implemented through voluntary organisations which are given 90 per cent assistance, shared equally by Central and state governments. In the case of union territories, 90 per cent assistance is released by Centre. Trusts and charities, rural development agencies, *panchayats* and other local bodies are also eligible to get assistance under this programme. Since the inception of scheme, 606 training courses to impart training to 20,955 women had been sanctioned up to 31 March 1989.

SHORT-STAY HOMES FOR WOMEN AND GIRLS

Government is giving grants-in-aid to voluntary organisations for establishing and running short-stay homes. Idea behind the scheme is to protect and rehabilitate those women and girls facing social and moral danger due to family problems, mental strain, social ostracism and exploitation of any cause which may leave her in a situation where she is exposed to any kind of danger. Under the scheme, following services/facilities are provided: (i) medial care; (ii) psychiatric treatment; (iii) case-work services; (iv) occupational therapy; (v) social facilities of adjustments, and (vi) educational, vocational and recreational activities. At present 64 'homes' are running with grants-in-aid from Government. Each 'home' should have an average of 30 residents at a time with facilities for a minimum of 20 and a maximum of 40 residents.

EDUCATION WORK FOR PREVENTION OF ATROCITIES ON WOMEN

A scheme of 'education work for prevention of atrocities on women' is implemented through voluntary organisations with 90 per cent Central assistance. It envisages holding of training camps for social and other workers including Government functionaries besides legal literacy handbooks; guides, primers, etc., and use of traditional media for raising awareness relating to violence against women.

NIPCCD

A women's division in the National Institute of Public Cooperation and Child Development has been set up. The effort is to identify problems of women and utilise services of well known consultants in the field to guide in preparation of programmes.

CONDENSED COURSES OF EDUCATION FOR ADULT WOMEN

To create a band of competent trained workers such as primary school teachers, balsevikas, nurses, health visitors, midwives and family planning workers, particularly in rural areas and also to open new vistas of employment to needy women, the scheme of condensed courses of education was launched in 1958 by Central Social Welfare Board. Component of vocational training was added to this scheme in 1975 to enable women in the age group 18-30 to get specialised training in vocations so that they could augment their income.

REVISION OF EXISTING SCHEMES

The scheme for setting up of working women's hostels has been liberalised. The scheme of short-stay homes for women in distress is also being expanded. The scheme of condensed courses of education for women has been revised with improvements in the schematic budget and inclusion of vocational training.

NATIONAL PERSPECTIVE PLAN FOR WOMEN

A core group was set up in Department of Women and Child Development to draw up a draft National Perspective Plan for Women 1988-2000. The Plan was presented on 9 October 1988.

It is the first comprehensive report since 1975 on women and development. Government has accepted some of the recommendations for implementation, some are already being implemented and others are being processed.

NATIONAL COMMITTEE ON WOMEN

A 29-member National committee on women headed by Prime Minister has been set up. It comprises women activists, state ministers, MPs, journalists, lawyers, social workers, academics and representatives of media, and women's organisations.

NATIONAL EXPERT COMMITTEE ON WOMEN PRISONERS

National expert committee on women prisoners which was set up under Justice Krishna Iyer submitted its report to Government on 18 May 1987. Action has been initiated to implement the recommendations of the committee in consultation with Central ministries as well as state governments, Central Social Welfare Board and state social welfare advisory boards.

NATIONAL COMMISSION ON SELF-EMPLOYED WOMEN AND WOMEN IN INFORMAL SECTOR

National commission on self-employed women presented its report titled *Shram Shakti* to Prime Minister in July 1988. It was constituted to make a comprehensive study of working and living conditions of poor women.

NATIONAL RESOURCE CENTRE FOR WOMEN

There has been a long-felt need for having an apex body at national level to facilitate data needs and coordinate training programmes for development of women. Setting up of a National Resource Centre for Women has been approved. It would orient and sensitise policy planners and administrators and facilitate leadership training for grass-root level women NGOs; function as a data bank; be a clearing house for dissemination of information, and undertake policy/programme–related research, etc.

OTHER ACTIVITIES

There are a number of other activities relating to women development. Important among them are:

MONITORING

Monitoring of 27 beneficiary-oriented schemes for women identified by Prime Minister's Office is being carried on by the newly set up monitoring unit. A special publication entitled *Women in India-A Statistical Profile-1988* has been brought out by this unit.

CENTRES FOR WOMEN

Twenty five universities have been selected for developing centres for women's studies which would attempt studies, research and documentations on women's issues.

COMMITTEE ON WOMEN ENTREPRENEURS

A committee on women entrepreneurs has been set up in Ministry of Industry.

NATIONAL CONFERENCE ON PANCHAYATI RAJ AND WOMEN

The Department organised a National Conference on Panchayati Raj and Women on 3-4 May 1989. About 700 women members of panchayats, chairmen/vice chairmen of *panchayat samities and zila parishads* attended the Conference. Objective of this meet was to identify issues which would enhance capabilities of district planning and decentralised execution of programmes and determine how women panchayat members could effectively participate in development process.

SAARC

India in its capacity as Chairman of the SAARC Technical Committee on Women in Development organised the Fifth and the last meeting of the Committee in New Delhi on 21-22 December 1989. Under the Calender of Activities as approved by the SAARC Standing Committee of Foreign Secretaries, India organised a Training Programme of Senior Personnel in rural development at Anand (Gujarat) in October 1987; a SAARC Workshop on Girl Child in New Delhi in September 1988, and SAARC Seminar on Women in Industry in Jaipur in November 1988. SAARC Summit held in Pakistan in December 1988 announced one of the major decisions to observe 1990 as the year of the SAARC Girl Child. This Department has already prepared the SAARC Action Plan for observing the Year of the Girl Child. Special programmes are being launched to rehabilitate daughters of prostitutes during the year.

CREATION OF THE OFFICE OF THE COMMISSIONER FOR THE RIGHTS OF WOMEN

The Department receives a large number of complaints/grievances regarding dowry deaths, harassment for dowry, harassment and discrimination in employment, problems regarding posting of husband and wife together, family violence, etc. This is mainly due to lack of awareness amongst them about their legal rights. At present, the Department is forwarding these complaints to concerned ministries/state governments/corporations and often the response, if any, is casual or routine. For an effective follow-up action, it is proposed to create a high-ranking national level office of the Commissioner for Rights of Women which would act as a nodal point responsible for enhancement of the legal status of women. It would also review as and when necessary existing legislation specially as it affects women.

RESEARCH AND PUBLICATION

Under the scheme of grants-in-aid for research and publications, universities, research institutions/professional bodies are given grants to cover project cost as per approved norms. Priority is given to research projects of an applied nature keeping in view the plan policies and social problems requiring urgent public intervention for welfare of women and child development.

WELFARE SERVICES FOR THE AGED

Number of the aged, *i.e.*, those who are 60 years and above, is on the increase. They at present number 4.75 crore constituting 6.3 per cent of the population. Emotional, social, physical and other needs of most of them are being met within their family set-up. Some of them, however, lack family support due to changes in social institutions, traditions, mobility of offsprings away from them and scarcity of financial means.

Those who have retired from organised sectors are provided social security by employers by way of pensions, provident fund, gratuity, etc. Such persons may need day-care centres and other welfare services to supplement care and services of the family. In case of families confronted with social problems, some may have to be accommodated in places where their emotional and entertainment needs could be met. Other major group of the aged is of those who retire from unorganised sectors without any social security benefit. They have to be provided financial assistance and in case they have no family, they have to be accommodated in places where they are provided free boarding and lodging.

There are a few State-run homes in the country. Most states and Central government are providing assistance to voluntary organisations to set up homes for the aged and to take up innovative programmes for providing services to them. Central government has started a scheme of grants-in-aid to voluntary organisations since 1983-84. Such assistance is available for providing day care and other services and for construction of homes for the aged. All states/UTs have their schemes of old age pensions. Criterion of eligibility differs, but generally destitute, poor and infirm, aged of 60 and above are provided pensions at rates ranging from Rs 30 to Rs 100 per month.

Ministry of Welfare discharges the nodal responsibility with respect to welfare of the aged. For this purpose, the Ministry maintains liaison with United Nations and other international agencies, organisations of the aged and various state and Central authorities. It has also set up an inter-ministerial committee on welfare of the aged to suggest programmes for care and protection of the elderly.

RELIEF AND REHABILITATION

Rehabilitation schemes cover programmes/schemes for relief and rehabilitation of displaced persons from Pakistan (including those who migrated from former East Pakistan, now Bangladesh), Indian nationals repatriated from Sri Lanka and Tibetan refugees. The schemes are implemented directly by Ministry of Home Affairs as well as through state governments and union territory administrations. Rehabilitation has more or less been completed except of Sri Lankan repatriates and Tibetan refugees.

REHABILITATION SCHEMES/PROGRAMMES

MIGRANTS FROM FORMER EAST PAKISTAN

About 41.47 lakh displaced persons from former East Pakistan, now Bangladesh, migrated to India from 1947 to 31 March 1958. Of these, over 31 lakh persons stayed on in West Bengal. A wide range of rehabilitation measures were undertaken for resettlement of these people during 1948-1961. These included agricultural schemes, vocational, technical training schemes, rehabilitation loans for small traders, businessmen/ professional people and provision of housing, medical and educational facilities.

By 1960-61, rehabilitation of old migrants in states other than West Bengal, was by and large completed. At present, the scheme for acquisition of land in approved squatters' colonies and issue of title deeds and the scheme for rehabilitation of remaining ex-camp site families are under implementation in West Bengal.

About 149 squatters' colonies of displaced persons which came into existence before 31 December 1950 were regularised from time to time. The next batch of 175 squatters' colonies of post-1950 period was approved for regularisation in the year 1978 and an additional batch of 607 squatters' colonies of post-1950 period was approved for regularisation in February 1987. While the regularisation of the main schemes of '149' category is now complete, acquisition of land in respect of '175' and '607' categories of squatters' colonies is not in progress. Under the '607' category of squatters' colonies, Government had approved a total expenditure of Rs 84.36 crore in February 1987 with the specific stipulation that the entire scheme of acquisition of land and issue of title deeds would be completed over a period of five years commencing February 1987.

Besides acquisition of land, Government of West Bengal is also now in the process of issuing free-hold title deeds to families who have not been issued any title deeds or have been issued lease-hold title deeds. Of a total of about 2.50 lakh title deeds to be issued in all categories of displaced persons' colonies, state government had issued free-hold title deeds in 66,286 cases till 31 August 1989.

Process of rehabilitation of 1,065 ex-camp site families of Bagjola ex-camp site is also in progress. Till now 170 families have been rehabilitated.

Displaced persons who migrated to India between 1 January 1964 and 25 March 1971 are called 'new migrants'. They number about 11.14 lakh. Considering that West Bengal could not absorb any more migrants, Government decided to resettle only those new migrants, who joined the camps set up outside West Bengal. Of the 78,000 families of new migrants about 74,855 families have been settled in various states (including Dandakaranya Project).

After emergence of Bangladesh, about 15,800 families of new migrants left the camps and rehabilitation sites in India. Many of these families, however, later returned. After verification of their previous stay in camps and rehabilitation sites, 5,035 such families were readmitted to relief camps and were again provided rehabilitation assistance.

DANDAKARANYA PROJECT

Dandakaranya Project in Koraput, Orissa was set up in 1958 for rehabilitation of displaced persons from former East Pakistan (now Bangladesh) in Dandakaranya region and for integrated development of the area with particular emphasis on interests of the local tribal population. Since the work relating to settlement of displaced persons in four zones of the project *viz.*, Kondagaon and Paralkote in Madhya Pradesh, and Umerkote and Malkangiri in Orissa had been completed, assets and institutions created in these zones have been transferred to respective state governments.

Pursuant to this decision, all assets and institutions created by Dandakaranya Project in the four zones had been transferred to governments of Madhya Pradesh and Orissa during 1985-89. Administration and management of these assets and institutions is now looked after by respective state governments.

REPATRIATES FROM SRI LANKA

Under the Indo-Sri Lanka agreemtnts of 1964 and 1974 and subsequent accord of January 1986, Government agreeed to grant Indian citizenship and accept repatriation of 5.06 lakh persons of Indian origin from Sri Lanka, together with their natural increase. Till the end of September 1989, 1,15,777 families, comprising 4,60,456 persons (3,34,734 accountable and 1,25,722 natural increase) arrived in India from Sri Lanka. Repatriates from Sri Lanka are granted primary rehabilitation/secondary rehabilitation assistance. Primary rehabilitation assistance consists of settlement under various schemes *viz.*, agriculture, small trade/business, plantation industries, etc. Subsidiary assistance consists of housing and educational facilities.

In the wake of ethnic disturbances in Sri Lanka which erupted in July 1983, Sri Lankan refugees (1,34,053) arrived in India from 24 July 1983 to 30 November 1987. Of these, 39,918 destitute refugees were accommodated in various camps in Tamil Nadu where relief facilities aggregating to Rs 700 per month per family, were provided. Remaining refugees preferred to stay outside without seeking any government assistance. After the signing of the Indo-Sri Lanka Agreement of 29 July 1987, refugees started returning on their own and by October 1987, 19,581 refugees had returned to Sri Lanka. Process of organised repatriation began on 24 December 1987 and thereafter in 50 batches till 31 March 1989. 25,585 refugees were returned to Sri Lanka under government arrangements.

Of the refugees who arrived between July 1983 and November 1987 now 777 remain in two camps in Mandapam and Kottapattu. These refugees are not eligible for being sent back to Sri Lanka as they are in possession of Indian passports/emergency certificaties and necessary action for rehabilitating them in India is in progress. Still 88,106 refugees are reported to be residing outside the camps. They have been advised from time to time to register themselves with district authorities for eventual repatriation to Sri Lanka. So far 9,783 refugee identity certificates covering 17,092 persons have been issued. Till September 1989 Rs 15.11 crore had been spent on providing relief assistance and other facilities to these refugees.

Between 26 August and 31 October 1989, 336 refugees arrived from Sri Lanka as a result of renewed ethnic violence. Of these 325 have been admitted to refugee camps at Mandapam and Kottapattu and are being provided normal relief facilities, remaining 11 have left on their own.

TIBETAN REFUGEES

At present there are about 80,000 Tibetan refugees in India. Of these 68,231 refugees have been settled either through self-employment or with Government assistance under agricultural and handicrafts schemes. Further, 3,130 Tibetan refugees have also been screened to determine their eligibility for grant of rehabilitation assistance.

PENSION AND PENSIONERS' WELFARE

Department of Pension and Pensioners' Welfare was set up in March 1985. Its responsibilities include formulation of policy and coordination of matters relating to retirement benefits of all Central government employees. The Department has also provided the much needed thrust towards having an integrated approach to matters relating to post-retirement benefits with a view to attracting not only the best talent available to civil services but also to ensure retention in services with a view to making services an effective engine for social and economic changes for the betterment of people.

In pursuance of these objectives, a revised integrated pension structure was introduced on 1 January 1986 based on the recommendations of Fourth Central Pay Commission. Pension for full qualifying service of 33 years is now uniformly calculated at 50 per cent of average emoluments drawn during ten months preceding the retirement. Benefit of the revised formula has also been extended to pre-1 January 1986 retirees and their pensions have also been substantially improved upon. Minimum pension/ family pension is now Rs 375 per month. Pension structure for pre-1 January 1986 retirees as well as those retiring on or after 1 January 1986 is now linked to average Consumer Price Index 608 (1960 as base) and a rational system for grant of relief against inflation beyond CPI 608 has been introduced. Provisions relating to retirement gratuity/death gratuity and family pension have also been substantially improved upon. These steps have resulted in simplification of pension procedures.

Procedure for sanction and disbursement of pension has been streamlined. Central Pension Accounting office (CPAO) has been set up from 1 January 1990. It now commences 24 to 30 months in advance of one's date of retirement to ensure that retirement benefits become payable from the very date of retirement. Passage through which pension documents are transmitted to pension disbursing authority has been simplified. Direct link has now been established between nominated accounts offices and link branches of public sector banks for speedier transmission of pension documents. Revised procedure eliminates a number of intermediate agencies which were responsible for delays in the past. Format of the pension payment order has also been revised to indicate full particulars of service which go into the calculation of retirement benefits. Pension payment order also includes details regarding family pension payable in the event of the death of the pensioner. Based on these details payment of family pension is commenced by disbursing officer without requiring fresh sanctions from administrative authorities.

Department of Pension and Pensioners' Welfare also plays an important role in the redressal of pensioners' grievances, qualified officers attending to their grievances. The time between 4 to 5 p.m. has been set apart daily in the Department when pensioners can come and meet the concerned officer without any prior appointment. Department of Posts has decided to hold *Pension Adalats* twice a year in June and December, at the level of Post Master General.

PENSION TO FREEDOM FIGHTERS

Pension was granted to 1,55,799 freedom fighters by February 1990 except 281 cases pending. Of these 30 cases having special features were pending for want of reports from state governments besides 251 under scrutiny by Committee for Arya Samaj Movement.

11 Mass Communication

IN a country like ours, mass communication plays a vital role in creating people's awareness about policies and programmes of development. It helps in motivating them to be active partners in nation building endeavour. A skillful synthesis between traditional and folk forms of communication on one hand and modern audio-visual media including Satellite Communication on the other, is being attempted. Ministry of Information and Broadcasting being the nodal organisation in this field has a comprehensive set-up of its mass media units with their regional and branch offices as well as mobile units.

ELECTRONIC MEDIA

AKASHVANI

Broadcasting started in India in 1927 with two privately–owned transmitters at Bombay and Calcutta. Government took over the transmitters in 1930 and started operating them under the name of Indian Broadcasting Service. It was changed to All India Radio (AIR) in 1936 and it also came to be known as *Akashvani* since 1957. AIR is serving as an effective medium to inform and educate people besides providing healthy entertainment.

BROADCASTING NETWORK

At the time of independence there were six radio stations. All India Radio's network now comprises 100 stations including three *Vividh Bharati/* commercial centres (exclusively) and two relay centres. It covers 94.96 per cent of population spread over 83.78 per cent area of the country. Seventy one more stations are likely by to come up during 1990-91. Commercial centres are at Chandigarh, Kanpur and Vadodara. Relay centres are at Alleppy and Ajmer. In addition, there are two studio centres at Bhubaneshwar and Shantiniketan. Radio network covers all important cultural and linguistic regions of the country. The programmes are radiated from 180 transmitters. Of these, 137 are medium wave. At present there are six FM transmitters at Delhi, Bombay, Calcutta, Madras, Kottagudam and Cochin.

MUSIC

Music was largely under the patronage of princely courts during pre-independence days. With the abolition of princely states after 1947, the task of preserving the musical heritage and its propagation was taken over by AIR. Through the regular broadcast of music programmes AIR has contributed largely to bring about an awareness and appreciation of Indian music in all its variety—classical, light, folk and tribal.

About 37.57 per cent of the total broadcast of AIR now constitutes music programmes. These include classical and light classical music, light, devotional, folk, tribal, film as well as classical and light western music. Besides the regular music programmes, AIR started in 1950s some of the major network programmes, namely, the national programme of music and the *Akashvani Sangeet Sammelan*. Later, the national programme of regional and light music and the zonal hook-up concerts by young artists were added. Through these programmes, AIR brings to its listeners the best of musical talent available in the country on its network.

AIR also broadcasts music lessons and music appreciation programmes regularly from various AIR stations. New talent is continuously scouted through the regular music auditions as well as annual music competition. Young and promising artists are featured in public concerts through a system of chain booking which enables artist of one region to get exposure in other regions of the country.

One of the significant achievements of AIR's national programmes and Sangeet Sammelan concerts is the integration of *Hindustani* and *Carnatic* styles—the major styles of music. Eminent artists as well as the most promising younger artists in both the styles are presented in these programmes. During Akashvani Sangeet Sammelan, Hindustani music concerts are arranged in the southern region and Carnatic music concerts in the northern region.

AIR periodically reviews and makes revisions in music audition rules in order to maintain high standard of music programmes. To bring in fresh talent rescreening process has already been started for 'B' graded artists in classical, light and folk music categories in all the stations of AIR.

To develop mass singing as a means of achieving national integration, 17 stations have instituted choral groups. As an extension of this programme. promotion of community signing as a movement has now been taken up in a big way. Selected songs with simple text and tunes are being propagated through broadcasts as well as training of teachers and students with the help of NCERT and educational institutions.

All the stations of AIR are broadcasting community songs 335 times a week. The lessons of such songs are being broadcast 96 times a week by all AIR stations, National Channel and Vividh Bharati Service of AIR.

Two major music festivals—*Thyagaraja* and *Tansen* are covered by AIR and excerpts are broadcast on the national as well as zonal hook-ups. AIR also releases selections from its Archives, which has the most important collection of music records in the country, through gramophone records and cassettes.

Western music which commands sizeable listening is now being broadcast from 17 stations, some of them as a part of youth programmes. These programmes bring to the listeners the western music artists of the country and the best selections of recorded western music from all over the world. Whenever such eminent artists from abroad visit this country AIR records their music for its listeners.

Another important milestone in AIR's music programmes is the national orchestra known as AIR *Vadya Vrinda* in Delhi and Madras. These orchestral units comprising both Hindustani and Carnatic musicians have done remarkable experiments in orchestration of Indian music under eminent conductors and have a wide repertoire of a variety of compositions based on traditional *ragas* and folk melodies as well as thematic compositions.

Folk music, a very important part of AIR's music programmes, covers about 11.77 per cent of the total music programme. Folk music collection centres have been set up at 20 centres to systematically collect and preserve this heritage. AIR also participates in the International Radio Music Festival of Folk Music organised by Asian Broadcasting Union every year.

VIVIDH BHARATI AND COMMERCIAL SERVICE

Popular entertainment programme, Vividh Bharati, is broadcast from 32 centres, including two short wave transmitters at Bombay and Madras. The total duration of the programme is 12 hours and 45 minutes on week days and 13 hours and 15 minutes on sundays and holidays. Film music, humorous skits, short plays and features are presented in these programmes.

Commercial broadcasting introduced in November 1967 from Bombay-Nagpur-Pune, on an experimental basis, is now carried by 29 centres. Advertisements are accepted in any language as tape recorded spots of 7, 10, 15, 20 and 30 seconds duration. Sponsored programmes started in May 1970.

In April 1982 commercials were introduced on a limited experimental scale on the primary channel. This was extended from January 1985 to other categories of programmes from 55 AIR stations. Spots/sponsorships are being accepted in rural programmes, women's programmes, film/light music (Indian and western) including listeners' choice, plays and other popular programmes.

PLAYS AND FEATURES

Radio plays have been extremely popular all over the country. Most of the stations broadcast atleast two plays a week. Besides original plays, radio adaptations of outstanding novels, short stories and stage-plays are also broadcast. Outstanding plays in Indian languages are broadcast in the national programme of plays which was started in 1956. A series of monthly chain-plays is also broadcast. Under this, about 12 model plays are produced in a year and circulated among major stations. Serial playlets which project the current socio-economic issues are broadcast from many stations on weekly basis. Humorous plays and skits are broadcast on the entire network of Vividh Bharati. An All India Competition is being organised since 1987 for radio playwrights in 19 prominent regional languages. This scheme has been launched to encourage writers to write specially for radio. This year a special prize has been kept for humorous plays also.

National programme of features was started in 1956. It focuses attention on matters of national importance in the political, economic, social and cultural spheres. The original script may be in English or Hindi but is invariably translated into regional languages and broadcast from all the regional stations.

NEWS AND CURRENT AFFAIRS

The history of news broadcast is much older than that of All India Radio. The first news bulletin went on the air on 23 July 1927 from a privately–owned radio station at Bombay. The news organisation of All India Radio, however, came into being in August 1937, when the first news bulletin was broadcast from Delhi. By 1939-40 All India Radio was broadcasting 27 bulletins and its news set-up was called Central News Organisation which later came to be known as News Services Division (NSD).

All India Radio is now broadcasting 273 bulletins for a duration of over 37 hours in its home, external and regional services. It has become one of the biggest news organisations of its kind in the world. The news broadcasts include 78 bulletins in 19 languages in its home services from Delhi. Their duration exceeds 11 hours a day. In the regional services, 127 bulletins including three from Delhi, are broadcast daily in about 72 languages and dialects for a duration of nearly 17 hours. In the external services 68 bulletins in 23 languages are put out every day from Delhi, Calcutta and Madras for a duration of over 9 hours. Special bulletins such as sports news and slow speed bulletins in English and Hindi are also broadcast. A special bulletin of five minutes duration is put out daily during the *Haj* period for the benefit of Indian pilgrims. During Parliament session, daily commentaries in Hindi and English reviewing the days's proceedings of both the Houses are broadcast. Weekly commentaries in English and Hindi are also put out covering the main developments during the period. Similarly, daily and weekly reviews of state legislatures are broadcast from state capitals in the languages concerned, by regional news units. In addition, commentaries from specialists in various fields and scripts from AIR's correspondents are broadcast in English, Hindi and Urdu in the programmes, *spotlight, samayiki* and *tabsara* respectively. In the current affairs programme every sunday, specialists take up a live issue of the week for indepth discussion. Eyewitness accounts, interviews with important persons and reactions of the common man to the happenings around him are presented through radio newsreel, both in English and Hindi.

AIR on 3 February 1990 launched a new programme *news sameeksha* comprising listeners' comments on its views and current affairs programmes. The programme, first ever of its kind, throws open news bulletins and various current affairs programmes of AIR for scrutiny, criticism, comments and suggestions. It is broadcast on the first and the third saturday every month at 0910 hrs on the national hook-up on Delhi 'D'.

A major part of the news broadcast comes from AIR correspondents. It has 101 full time correspondents in the country. Besides. AIR correspondents are stationed at Singapore, Colombo, Dhaka, Dubai, Kathmandu, Harare and Islamabad. AIR also has 232 part time correspondents in India and abroad. It also subscribes to the news agencies like PTI. UNI, *Bhasha* and *Univarta*. Another source of news is the monitoring unit at Ayanagar in Delhi and a small unit attached to the General News Room in New Delhi itself. The two units together monitor 144 transmissions daily from various foreign broadcasting organisations in nine foreign and five Indian languages.

EXTERNAL SERVICES DIVISION

External Services Division (ESD) of All India Radio has been the electronic ambassador of India. It celebrated its golden jubilee in October 1989.

The Division broadcasts programmes for 75 hours 15 minutes every day in 23 languages (sixteen foreign including English and seven Indian). These programmes consist of news, commentary, press review, talks, interviews, discussions and music—mainly Indian. The two major services are General Overseas Service in English (9 hrs 30 mts), Urdu Service (12 hrs 15 mts). The West Asian Service broadcasts programmes in Arabic (3 hrs 15 mts), Dari (1 hr 45 mts), Persian (1 hr 45 mts), Pushtu (2 hrs) and Baluchi (30 mts). A new Telugu Service for listeners in South East Asia was started from 27 March 1990. The programmes can be heard on 31.46 metres (9535 kilo hertz), 25.55 metres (11745 kilo hertz) and 19.85 metres (15110 kilo hertz) from 0415 hrs IST to 0445 hrs IST corresponding to 2245 hrs UTC to 2315 hrs UTC.

East African countries are served by Swahili Service (2 hrs). The French Service (45 mts) is directed to West and North West Africa. Other area-oriented services are Russian (1 hr), Burmese (1 hr 30 mts), Chinese (2 hrs), Indonesian (1 hr), Sinhala (2 hrs), Thai (45 mts), Nepali (3 hrs) and Tibetan languages (1 hr 45 mts). For Indians abroad, there are services in Bengali (6 hrs 45 mts), Gujarati (1 hr), Sindhi (2 hrs), Hindi (4 hrs 30 mts), Punjabi (2 hrs), Tamil (12 hrs 15 mts) and Urdu (12 hrs 15 mts). These broadcasts project the Indian point of view on world affairs and acquaint the overseas listeners with the developments in India, along with information on the myriad facets of Indian life, thought, culture, tradition and heritage.

Since the signing of the Peace Accord with Sri Lanka, ESD has been playing a vital role in communicating the imperative need for peace and its benefits to the target people in the emarald Island. To meet this requirement, Tamil Service has been extended to 12 hrs 15 mts a day. ESD also beams UN News to different parts of the globe on every saturday.

PROGRAMME EXCHANGE

ESD supplies recordings of different programmes to more than 100 foreign broadcasting organisations. Recording of weekly press review is supplied to the Broadcasting Foundations of America. Recording of special orchestral compositions specially produced for Republic Day and Independence Day are also supplied to about 65 countries. Besides, half an hour recording of music is also sent to different countries on quarterly basis under the Cultural Exchange Programme.

There is no service directly broadcast to America. Recorded programmes are sent every week to ethnic broadcasting stations of USA, UK and Canada through the External Affairs Ministry. ESD is also supplying special programmes regularly to Mauritius, Fiji, Japan, Trinidad and Tobago.

PROGRAMME JOURNAL

ESD publishes a monthly programme journal *India Calling*. It also brings out quarterly folders in foreign languages (Nepali, Pushtu, Swahili, Tibetan, Arabic, Burmese, Chinese, Dari, French and Indonesian) to help provide advance information of the programmes broadcast. In addition, the journal India Calling carries the text of the selected talks already broadcast and other items of listeners' interest. The publications are supplied free to overseas listeners.

External Services Division has been India's authentic window to the world. Efforts are on to strengthen the signal, introduce additional language services, improve the programme content and also reach new areas.

PROGRAMMES FOR SPECIAL AUDIENCE

The programmes for special audience include those for the armed forces, women and children, youth, students, rural and tribal people and industrial workers. Fourteen AIR stations broadcast daily programmes for the armed forces, while the programmes for women are broadcast from 84 stations in regional languages two to six days a week. The programmes for children are broadcast from 76 stations. Two to seven such programmes a week are put out.

Thirty three AIR stations broadcast programmes for industrial workers. In addition, All India Radio-Dibrugarh, Kurseong and Guwahati broadcast one to two programmes a week for tea garden workers.

Yuva Vani provides a forum for self-expression to the youth who constitute a sizeable section of the population. The service is open to persons in the age group of 15-30. AIR stations broadcast this programme in varying duration and frequency in different languages and different formats. AIR Delhi, Calcutta, Hyderbad, ~~Jammu~~ and Srinagar broadcast these programmes for long hours on a separate transmitter under Yuva Vani.

For school .students, most of the AIR stations broadcast programmes based on the school curriculum to reach students in the interior areas. Radio support to university correspondence degree courses is also provided by several stations. Stations like Shimla, Nagpur and Tiruchi also broadcast programmes on non-formal education.

All India Radio started broadcasting programmes on family planning now known as family welfare on a regular basis in the late sixties to provide radio support to the National Family Planning Programme. In the late seventies, the family planning service delivery system was integrated into health package of service particularly the maternal and child health and nutrition activities and the entire integrated activity was called as Family Welfare.

Intensive Family Welfare broadcasts are made from 36 stations. Other stations also put out programmes related to family welfare. Particular emphasis is laid on 'Two childrer norm', 'Spacing methods', 'Use of contraceptives', 'Raising of marriage age', 'Terminal methods of family planning' and 'Women's education'. Health protective measures in respect of immunization, AIDS, drug abuse, goitre control, control of rabies, epilepsy and blindness, etc., are highlighted frequently

RURAL PROGRAMME

Rural programmes are broadcast from almost all AIR stations in regional languages and local dialects. In 1966 AIR set up Farm and Home Units in selected AIR stations to provide relevant and problem-oriented farm information to the farmers of a small homogenous area with similiarity of agro-climatic conditions. This marked the beginning of a new era of farm broadcasting in the country. More units have been set up since then. Presently 85 stations including five local stations, have one such unit each. Another 10 local stations will start operating Farm and Home broadcasts very shortly. Farm and Home Units are to be set up in all the regional and local stations of AIR network. The main ingredients of Farm and Home broadcasts are hints on day-to-day agricultural operations, scientific methods of agricultural and livestock farming, soil and water management, fertiliser application, plant protection measures, storage and marketing, etc.

The duration of broadcasts for rural audience from each station varies from 21 hours to 45 hours a month. It is broadcast in morning, evening and noon every day for convenient listening by majority of rural people.

PROGRAMMES FOR SENIOR CITIZENS

A notable achievement has been the starting of radio programmes for senior citizens from 17 state capitals. The programmes feature interesting items of geriatric care, pension problems, tax problems, legal advice relating to will and succession and resorts for the aged.

SPORTS CELL

Sports Cell manned by a Director looks after the coverage of various national and international sporting events. Live coverage and reviews of major sporting events were arranged during 1989 including Nehru World Cup Cricket Series, *Bhartiyam*, VIII Asian Track and Field Meet, Inter-Continental Women's Hockey Championship, Asian Rowing Championship and Asia Cup (Hockey)

SPOKEN WORD PROGRAMMES

National programmes of talks/discussions in Hindi and English are broadcast on every monday and tuesday. The National programme is relayed by a number of AIR stations depending upon local listening interest. It covers a wide range of subjects of national importance and provides support to general campaigns including national integration, communal harmony, environmental protection, energy conservation, rural development, family welfare and eradication of social evils such as untouchability, superstitions, etc.

As a part of the year-long celebrations of 40th Anniversary of India's Independence, programmes highlighting achievements in various socio-economic and technological fields were broadcast during 1988-89. AIR also put out programmes to mark birth centenary of Pt. Jawaharlal Nehru.

AIR has instituted two Memorial Lectures in memory of Sardar Vallabh Bhai Patel and Dr. Rajendra Prasad. A National Symposium of Poets is held every year in which eminent poets in different languages participate. This is broadcast on the eve of the Republic Day.

NATIONAL CHANNEL

An important milestone in broadcasting was the commissioning of National Channel on 18 May 1988 to provide high quality programmes. AIR's new venture operates on 1566 KHz (191.6 metres) and covers about 54 per cent of the population spread over more than half a dozen states. Besides other programmes, it broadcasts a programme entitled *Vividha*, a miscellany of people and places, men and matters and music six days in a week.

Transmission hours of broadcast of the National Channel were extended from 7 July 1989 and the service is available from 1855 hours to 0610 hours daily. A medium wave transmitter has also been installed in Delhi to carry the programmes of National Channel from 27 July 1989 on 1215 KHz (246.9 metres).

EXTENSION OF TRANSMISSION TIME

Transmission hours of Delhi 'A' and 'B' stations on sunday have been extended from 9 July 1989. Delhi 'A' is now continuously on air from 6 AM to 0010 AM (following day) and Delhi 'B' is on air on sunday from 6 AM to 0005 AM (following day). The transmission hours of Delhi 'C' (CBS) have also been extended by 2 hours 15 minutes. This service is now available from 6.30 AM to 11 AM on Sunday.

Transmission timings of Madras, Bombay and Calcutta stations have also been extended. These stations broadcast from 6 AM to midnight.

AIR Delhi also broadcasts programme of stereo music on its FM transmitter at 9.30 PM every day.

CENTRAL MONITORING SERVICES

Monitoring of foreign broadcasts began in India in November 1939. A monitoring unit was started at Delhi as a branch of Military Intelligence, mainly to collect material for preparation of counter-propaganda and to keep a security check on enemy broadcasts during the second world war. In March 1940 the Unit was shifted to Shimla to take advantage of better reception at higher altitude. Next year it was brought under the Department of Information and Broadcasting. In October 1945, the Unit came under Directorate General, All India Radio. It was brought back to Delhi in April 1981 and is now located at Ayanagar in the outskirts of the capital. Later the Unit changed its role to provide information about foreign broadcasts for AIR NSD and to feed key departments like Ministry of Home Affairs, Defence, External Affairs and Information and Broadcasting. The Unit celebrated its golden jubilee in November 1989.

With the growth of India's importance and various other developments in sub-continent, a need was felt for a more comprehensive organisation to cope with new situation. Accordingly, a Central Monitoring Cell was set up in 1986. In 1988, the Central Monitoring Cell and the monitoring services were merged and renamed as Central Monitoring Services (CMS) of All India Radio.

CMS monitors 86 transmissions from 22 foreign stations. Besides, transmissions in Indian languages, broadcasts in six foreign languages are being monitored at present. A new dimension has been added to the activities of the Central Monitoring Services with the monitoring of TV telecast from two neighbouring countries.

AUDIENCE RESEARCH

Audience research is a functional activity providing basic data for feedback, ready reference and analysis for programme planners on various aspects pertaining to audience composition, its habits, tastes, preferences, exposure, extent of coverage, impact of the programmes, etc.

It consists of three tiers. The Unit is headed by Director, Audience Research. At the intermediate level, there are five units each under the charge of a Deputy Director including the one for the Commercial Broadcasting Service of the Central Sales Unit, Bombay. At the peripheral level, there are 20 units located at various AIR stations, each headed by an Audience Research Officer.

During the year 1989-90, a major survey was conducted on the serial

Vigyan Vidhi (Method of Science) at 13 places covering 12 languages. A survey on slow speed news bulletin was completed at five places. Currently, the units are conducting the study on the programme *Aaj Subah* at four places. The Audience Research units also conducted 123 quick feedback studies on National Programmes (till the end of October 1989). Feed forward studies were proposed to be taken up for the up-coming AIR stations at 18 places *viz.*, Ahmednagar, Banswara, Balaghat, Bilaspur, Baripada, Cannanore, Hospet, Halflong, Jorhat, Jhalawar, Kathua, Lunglei, Nizamabad, Obra, Purnea, Shahdol, Tirupati and Warangal.

TRANSCRIPTION PROGRAMME EXCHANGE SERVICE

Transcription and Programme Exchange Service has three wings—archives, transcription and programme exchange unit. This service of AIR helps different stations to exchange outstanding programmes, transcribes the speeches of eminent personalities and maintains the Archives Library.

Archives Library set up in 1954 collects and preserves the recorded speeches of President, Vice President and Prime Minister. Voice recordings of eminent Indian and foreign personalities have also been preserved. The music archives of AIR has a huge repertoire of Indian classical, light and traditional music in all its variety. The Archives has the unique privilege of having recorded the voice of Mahatma Gandhi for over 50 hours among other valuable items preserved. Special efforts are being made to collect rare and old recordings of master musicians.

Programme Exchange Unit (PEU) circulates recordings and scripts received from AIR stations and foreign broadcasting organisations. All national programmes of music, plays, features, talks, interviews and discussions are circulated to the stations. Contributions from about 50 foreign broadcasting organisations are also received, processed and circulated to AIR stations.

Computerisation of catalogues both for music as well as spoken word items has been introduced to help speed up procurement of preserved recorded material for broadcast purposes.

Another major task undertaken was the preparation of volumes of Pandit Jawaharlal Nehru's speeches. Nearly, 2,000 recordings of Pandit Nehru's speeches from 1946 to 1964 have been dubbed on new tapes and preserved in the Archives. Excerpts from the speeches have been supplied to the various media units and other organisations for use during the Nehru Centenary Year.

AKASHVANI ANNUAL AWARDS

Akashvani annual awards were instituted in 1974, with a view to bringing out the best from the staff. In this context, it is significant to mention that some of the programmes/features carved a definite niche for AIR in the world of broadcasting. AIR has been elected as the Chairman of the Asia Pacific Institute for Broadcasting Development (ABID). India (AIR) has also been elected as the first Vice Chairman of Standing Programme Committee of the Asia Pacific Broadcasting Union.

Likewise, Akashvani annual awards for technical excellence were instituted in 1979 to encourage healthy competition and recognise merit in the field of broadcast engineering.

RESEARCH

Research Department of All India Radio undertakes studies in noise level in medium and high frequency bands for scientific planning of broadcasting services. It also investigates problems reltating to maintenance and development of broadcasting in the country. It caters to the research needs of Doordarshan as well in the field. The activities of the Department are: (i) to undertake studies, investigations, research and development of sound and TV broadcasting networks in the country keeping in view the latest and futuristic advancements in technology; (ii) to design, develop and undertake prototype production of those equipment where production by commercial firms is not cost-effective; (iii) to provide technical support to the sound and TV broadcasting networks; (iv) to evaluate the performance of equipment supplied by indigenous firms; (v) to participate and offer expert advice on behalf of AIR and TV in the national committees in formulating national policies/standards; (vi) to participate and offer expert advice on behalf of AIR and TV in various international fora including International Tele-communications Union and its organs, broadcasting unions like Asia Pacific Broadcasting Union (ABU) , European Broadcasting Union (EBU), etc.

During Seventh Plan, emphasis had been laid on the introduction of latest technology in the network. A number of studies and developmental activities were planned during the period. A centre for digital techniques in broadcasting is being established with UNDP assistance of US dollar 5,57,650. Government of India has provided Rs 59 lakh for the project.

DOORDARSHAN

Television started in India as an experimental service in September 1959 with a limited transmission of three days a week. The regular service began in 1965. In 1976, Television was delinked from All India Radio to form an independent organisation, Doordarshan. It witnessed an unprecedented growth with installation of almost one transmitter a day in 1984 and 1989. Doordarshan now reaches an estimated 79 per cent of the population (52 crore) through a network of 520 transmitters. There are 18 programme originating *Kendras* at Delhi, Calcutta, Cuttack, Madras, Bombay, Lucknow, Jalandhar, Srinagar, Jaipur, Hyderabad, Ahmadabad, Bangalore, Gorakhpur, Rajkot, Ranchi, Nagpur, Guwahati and Trivandrum. By the end of Seventh Plan, the number of such centres was likely to be raised to 48 and number of transmitters to 545 covering about 84 per cent population of the country. In addition, Raipur, Muzaffarpur and Gulbarga have the facilities to telecast programmes produced at other Kendras. There are eight relay centres at Mussoorie, Kanpur, Pune, Panaji, Amritsar, Asansol, Murshidabad and Kodaikanal. All the 412 districts in the country (1981 census) except two, namely, Manipur South and Mokokchung are wholly or partially covered by TV service. These two uncovered districts are also envisaged to be brought under TV coverage during 1991.

Eighteen high power TV transmitters (including 13 in replacement of existing low power transmitters), 22 low power and very low power transmitters/transposers and 19 programme production centres initially approved under Seventh Plan are scheduled to be commissioned by 1990-91, besides establishment of nine high power transmitters (including four for second channel service) and 25 low power/very low power transmitters.

Introduction of statellite technology and its use for Doordarshan was a unique experience. Since 1982, Doordarshan also started transmitting the National Programme for Delhi for a duration of 155 minutes from 8.40 PM to 11.15 PM every day. To cater to the interests of the local people, Doordarshan started its INSAT service in six states of Andhra Pradesh, Orissa, Maharashtra, Gujarat, Bihar and Uttar Pradesh. With the availability of satellite transponders, Doordarshan is now telecasting programmes in the regional language originating from Bombay for all the transmitters in Maharashtra and similarly for all the transmitters in Andhra Pradesh programmes originating at Hyderabad are being telecast. Such programmes are received by a large section of rural audience on the Direct Receiver Sets (DRS), via satellite and the Very High Frequency Sets (VHF) , through the LPTs and HPTs installed in the region. With the commissioning of INSAT-IC, the regional service is proposed to be extended to Orissa and Karnataka. This phenomenal expansion backed by indigenous technology has helped in linking a major part of the country's rural and remote areas with the national mainstream. India's national multi-purpose satellite INSAT-IC is currently being made use of for telecommunication, meteorology and radio besides television. Doordarshan also started telecasting programmes in colour from August 1982.

Doordarshan introduced the second channel of transmission in Delhi in September 1984 followed by commissioning the second channel in Bombay, Calcutta and Madras. This has been a landmark towards fulfilment of the target of the three-tier service—the national service, the regional service and the local service. The introduction of second channel has offered viewers an alternative viewing of their choice and interest. From 26 January 1990 timings of second channel have been revised from 7.30 PM to 10.30 PM as against 6.30 PM to 8.30 PM. In 1988, the Central Production Unit was set up to undertake production of prestigious programmes and serials. Doordarshan has also undertaken ventures of co-production of programmes with different organisations and eminent producers.

A special scheme has been evolved for the north-eastern region wherein

Guwahati will become the focal point for transmitting programmes in the regional languages of all the seven states in the region.

Doordarshan introduced its first school television (ETV) in October 1961. Educational programmes, both of enrichment type and syllabus-oriented, are being put out by several Doordarshan Kendras. Programmes for the universities have also been introduced since August 1984 in collaboration with the University Grants Commission. INSAT-1B is being utilised for promotion of primary education in six selected states of Orissa, Bihar, Andhra Pradesh, Uttar Pradesh, Maharashtra and Gujarat. The programme is of enrichment type in the respective regional language of two segments for the age groups of 5-6 and 9-11 years. The total duration for each state is 45 minutes. Area-specific programmes for a duration of 35-40 minutes relating to agriculture, irrigation, health and family welfare are also telecast in these states in the local languages. To enhance the extent of viewing, the community TV sets have been provided by the *panchayats*, education department and the cooperatives. In distant and remote areas, Direct Receiver Sets have also been installed.

Doordarshan has successfully undertaken challenging assignments like the coverage of the 9th Asian Games in 1982, the Non-aligned Meet and CHOGM in 1983, SAARC Conference in 1986 and the Reliance Cup Cricket in 1987, etc.

Doordarshan started its morning transmission in February 1987. Initially it was for a duration of 45 minutes a day which has now been increased to one hour and forty five minutes. It includes Hindi and English news bulletins, health programmes, children's programmes, music and dance items as well as skits. The transmission is relayed by all transmitters in the country.

Commercial booking of spots on Doordarshan was introduced in January 1976. In addition to spots, series of sponsored programmes are being telecast now. This has not only offered variety in TV transmission but also involved participation of a large number of outside talent for the production of programmes besides increasing government revenue. Gross commercial revenue of Doordarshan from advertisements was Rs 507.69 crore for the last three financial years. Duration of time taken for telecast of advertisements was around three per cent of the total transmission time.

Tele-text Service was introduced at the Delhi Kendra to transmit news and information on train and air services, stock market and weather forecasts, etc. In the beginning, this service was available to the viewers with the help of a decoder attachment. Now, the service is provided on Channel-II.

Future plans lay emphasis on augmentation of software facilities including area-specific television service, setting up of studio centres at the state capitals and commissioning of satellite microwave and tract links for relay from the state capitals to other transmitters in the state. The basic aim is to provide three segments in television programmes—national, regional and local—for viewers living in different parts of the country.

PRESS AND PRINT MEDIA

REGISTRAR OF NEWSPAPERS FOR INDIA

Registrar of Newspapers for India commonly known as 'Press Registrar' came into being on 1 July 1956. The duties and functions of the Press Registrar are defined in the Press and Registration of Books Act, 1867, as amended from time to time. Apart from these duties, the Registrar also allots newsprint and recommends import of printing machinery for newspapers.

Indian press includes 41 centenarians. The Gujarati daily *Bombay Samachar* published from Bombay is the oldest existing newspaper. It came into being in 1822. *Anand Bazar Patrika, Punjab Kesri* and *Times of India* retained the first, second and third position respectively circulationwise.

At the end of 1988, the total number of newspapers was 25,536 compared to 24,629 in 1987, an increase of 3.7 per cent. Among them, 2,281 were dailies, 134 tri/bi-weeklies, 7,813 weeklies and 15,308 other periodicals.

Newspapers were published from all the states and union territories except Arunachal Pradesh and Lakshadweep. Uttar Pradesh claimed the top position with 3,564 newspapers. It was followed by Delhi (3,354), Maharashtra (2,997) and West Bengal (2,612). More than one thousand newspapers were also brought out from Rajasthan (1,599), Tamil Nadu (1,472), Andhra Pradesh (1,351), Madhya Pradesh (1,316), Karnataka (1,252), Kerala (1,240) and Bihar (1,032).

In the case of dailies also, Uttar Pradesh maintained its top position with 324 newspapers, followed by Bihar (231) and Maharashtra (224).

Newspapers were brought out in 93 languages and dialects. Apart from the sixteen principal languages, newspapers were published in 77 other languages, and a few in foreign languages. The highest number of newspapers were published in Hindi (8,222) followed by English (4,458).

Table 11.1 shows publication of newspapers languagewise at the end of 1988.

CIRCULATION

Total circulation of newspapers/periodicals as on 31 December 1988 was 54,873,000 copies as compared to 56,830,000 copies in 1987 indicating a decline of 3.4 per cent. According to the circulation data available, 214 come in the category of big newspapers (having circulation of more than 50,000 copies), 500 in medium category (with a circulation between 15,001 and 50,000 copies) and 3,136 small category (with a circulation up to 15,000 copies).

OWNERSHIP PATTERN

The largest number of newspapers in all languages, except Sanskrit and Kashmiri, were owned by individuals during 1988. Individual-owned newspapers were also having the biggest share in circulation with 37.6 per cent.

TABLE 11.1 NUMBER OF NEWSPAPERS (LANGUAGE AND PERIODICITY)

Language	Dailies	Tri/Bi-Weeklies	Weeklies	Fortnightlies	Monthlies	Quarterlies	Others	Annuals	Total
Hindi	888	39	3,756	1,351	1,773	301	96	18	8,222
English	190	17	509	407	1,832	904	490	109	4,458
Assamese	8	1	34	23	31	8	6	-	111
Bengali	60	11	473	326	529	317	105	7	1,828
Gujarati	49	4	225	108	367	41	27	9	830
Kannada	132	4	218	131	299	32	10	2	828
Kashmiri	-	-	1	-	-	-	-	-	1
Malayalam	148	1	137	125	528	32	13	6	990
Marathi	158	14	438	119	366	74	33	71	1,273
Oriya	25	-	56	41	177	56	13	4	372
Punjabi	48	1	222	47	186	23	17	1	545
Sanskrit	2	-	5	1	13	11	3	-	35
Sindhi	7	-	27	8	31	4	2	-	79
Tamil	166	5	171	164	504	19	6	1	1,036
Telugu	63	2	184	166	290	17	5	1	678
Urdu	244	13	813	230	376	36	13	3	1,728
Bilingual	36	14	401	217	792	242	88	25	1,815
Multi-lingual	9	2	69	39	171	53	24	7	374
Others	48	6	74	32	104	57	12	-	333
Total	2,281	134	7,813	3,485	8,369	2,227	963	264	25,536

PRESS INFORMATION BUREAU

Press Information Bureau (PIB) is the Central agency of the Government of India to disseminate information on its policies, decisions, programmes and activities. The information put out by PIB goes to daily newspapers, news periodicals and news agencies, as well as radio and television organisations both Indian and foreign. With a countrywide teleprinter network and air bag facilities, PIB reaches newspapers not only in Delhi, but in all other parts of the country as well. No other organisation in the country reaches such a large number of newspapers and other media. While about a thousand newspapers subscribe to the wire news agencies, PIB distributes its press material to over 8,000 newspapers.

FUNCTIONS

The main functions of the Bureau are to put out information on Government policies, programmes and activities, obtain feedback on how these are received, and to apprise the Government of public reaction as published in the news and editorial columns of English and Indian language newspapers. The Bureau also advises the Government on its information policy.

Officers of the Bureau at its headquarters in Delhi are attached to different ministries and departments of the Government of India. These officers explain and interpret government policies and disseminate factual information. The departmental publicity officer also performs the role of public reaction evaluator, keeping the Government in touch with public opinion besides providing explanation and backgrounders to official pronouncements. He also acts as an adviser to the Government on press relations and publicity. He maintains constant liaison with newspaper correspondents and representatives of other mass media.

The Bureau employs a variety of means to disseminate information. Written material issued by the Bureau includes press communiques, press notes and handouts, backgrounders, features and newsletters. The material is put out in English, Hindi, Urdu and 13 other Indian languages. The Bureau also arranges press conferences and briefings to enable media representatives to get the news and clarifications at first hand.

PICTORIAL SERVICES

PIB arranges photo coverage of Government activities. A large number of photographs on Government activities are supplied to dailies and periodicals all over the country to enable them to supplement written coverage by pictures. The Bureau has its telephoto equipment with which photographs are transmitted the same day to some of its regional and branch offices. The Bureau supplies ebonoid blocks to small and medium newspapers which have no facility to make their own blocks. *Charbas* are supplied to Urdu newspapers for use in the litho process.

ACCREDITATION

At present, there are 1,167 journalists accredited to the Government at the headquarters. They include correspondents of news agencies, newspapers, editor-cum-correspondents, correspondent-cum-cameramen, cartoonists and cartographers. This also includes 181 accredited correspondents of foreign news agencies, newspapers, broadcasting and television organisations.

CULTURAL EXCHANGE PROGRAMMES

The Bureau is the implementing agency for exchange of delegation of journalists between India and foreign countries under cultural exchange programmes and protocols.

REGIONAL AND BRANCH OFFICES

The Bureau has a network of eight regional offices at Bombay, Madras, Chandigarh, Calcutta, Lucknow, Guwahati, Bhopal and Hyderabad, 27 branch offices/branch-cum-information centres and two information centres, most of which are linked with the headquarters by teleprinter. The two information centres are at Aizawl and Port Blair. Through the regional and branch offices, the Bureau supplies press material to newspapers and other news media of various Indian languages, besides Hindi and English in all parts of the country. Libraries are also attached to the information centres which serve as repositories of information on vaious development matters.

NATIONAL PRESS CENTRE

A National Press Centre has been set up in Press Information Bureau, New Delhi. It will serve as a nerve centre for both national and international Press.

NEWS AGENCIES

PRESS TRUST OF INDIA

Press Trust of India (PTI) was set up on 27 August 1947, as a non-profit sharing cooperative of newspapers, with a mandate to provide economical, efficient and unbiased news service to all its subscribers without discrimination. PTI took over the Associated Press of India (a news agency set up in 1908) and the 'Indian operations' of the Reuters news agency. It began functioning from 1 February 1949.

Today, PTI's news service in English language crosses about 1,00,000 words per day. A network of 136 bureaux in the country and 11 bureaux and about 30 stringers abroad, and arrangements with several transnational and national news agencies make up the backbone of this service.

The eighties were years of modernisation and diversification for PTI. As part of its modernisation programme, news operations were computerised in 1984. To help deliver news reports faster PTI has now gone for high speed electronic printers in place of 50-band electro-mechanical teleprinters. With a view to extending services directly to the subscriber and also to overcome various snags of the point-to-point transmission, PTI is now increasingly taking recourse to the satellite mode of dissemination through INSAT satellite. The facility is already available in 14 cities and receiver sets are proposed to be located in another 12 cities shortly. The accent of PTI's modernisation is on adaptation of latest technology to suit the needs of PTI and its subscribers.

To help in the task of modernisation, PTI has created a separate R and D wing. In collaboration with Madhya Pradesh State Electronics Development Corporation, it has set up a production facility in Bhopal called National Information Technologies Ltd. It caters to PTI's needs of high speed multi-lingual electronic printers, equipment for satellite operations and controllers for its News Scan and Com Scan services. The process of diversification has seen PTI bringing out *Economic Service, Corporate Trends and Science Service* as fortnightly mailers and weekly features in English and Hindi. A News Scan for display of news on video monitors was started in 1982. A Com Scan service of commercial news on video terminals has been in operation since late 1987. PTI has integrated the major Indian stock exchanges in a simultaneous display of inter-market share prices on electronic boards. *India Perspectives* a monthly in English, French and Spanish languages brought out by PTI's publication wing for Ministry of External Affairs, has been received well among readers abroad.

This process of diversification has also seen the creation of *Bhasha,* a news service in Hindi started in April 1986 and PTI-Photo, the country's first wire photo service which began in October 1987. In early 1986, PTI also set up a television facility PTI-TV which has been producing news clips, documentaries and video films for Doordarshan and other clients.

PTI has plans to launch a news service in Marathi on the lines of Bhasha. Also on the anvil is a 'Newsbank' facility through which PTI hopes to provide newspapers other ready-to-use background material and current data on a variety of subjects.

PTI is a leading participant in the Pool of News Agencies of the Non-aligned countries and the Organisation of Asia Pacific News Agencies (OANA). From March 1985 till July 1988, PTI was the president of OANA. It is a major redistribution centre in the news exchange arrangements of both the Non-Aligned News Agencies Pool and OANA.

UNITED NEWS OF INDIA

UNI was registered as a company on 10 November 1959 and began its news operations from 21 March 1961. It is now one of the largest news agencies in Asia with over 100 news bureaux in India and abroad. UNI also provides news service to subscribers in four Gulf countries, Singapore and Mauritius.

In May 1982 the agency launched a full-fledged Indian language news service, *Univarta,* A National Photo Service was also started in September 1987.

Other teleprinter services of the news agency include Unifin, a specialised service for banking, financial and commercial organisations, and Unistock, a service for stock exchanges and stock brokers.

In July 1986, TV wing of the news agency was started which provides news features, clips and documentaries for Doordarshan and other organisations. Yet another specialised service run by the agency is Uni Scan, a news service fed into television sets.

UNI has a number of mailer services, the oldest of them being backgrounders. Backgrounders come out weekly in both English and Hindi.

NON-ALIGNED NEWS AGENCIES POOL

Non-aligned countries met for the first time at the level of Information Ministers in July 1976 at New Delhi and in a declaration took note of "the persistent and serious imbalance in the current global information situation" and its adverse effects on the Non-aligned countries. The declaration stressed the need "to liberate their information and mass media" from the colonial legacy and expressed their collective determination to rectify this situation. It called for "the decolonisation of information" and "the establishment of a new economic order". To give practical shape to this, Non-Aligned News Agencies Pool was set up on 13 July 1976.

News Agencies Pool of the Non-aligned countries is a system of news exchange based on professional cooperation, equality and coordination among the Pool partners

India, which played a leading role in the formation of the Pool, was elected the first Chairman of the Coordinating Committee from July 1976 to November 1979.

She was elected a member of the Pool's Coordinating Committee at its Third General Conference held in Tunis in November 1982 and re-elected at the Fourth and Fifth General Conference held in Havana (March 1986) and Luanda (June 1989). India participated in the last General Conference held at Luanda in June 1989. At the Tunis General Conference, a resolution was passed to form a Monitoring Group for closer review and monitoring of the Pool operations. Eight meetings of the Group have been held so far. At present, the group consists of Indonesia, India, Syria, Yugoslavia, Algeria, Senegal, Zambia, Cuba, Ecuador and Mexico.

Press Trust of India operates India News Pool Desk of the Non-Aligned News Agencies Pool. India is currently having direct communication link with Belgrade, Jakarta, Baharain, Havana, Colombo, Hanoi, Kuala Lumpur, Tunis, London, Harare, Baghdad and Lusaka through satellite; with Kathmandu, Dhaka and Islamabad through terrestrial link and through radiobeam service to Kabul.

INTERNATIONAL PROGRAMME FOR DEVELOPMENT OF COMMUNICATION

International Programme for Development of Communication (IPDC) was set up in 1981 to promote communication capabilities in developing countries. To look after the work relating to IPDC, 35 member States are represented on Inter-governmental Council, which in turn elects an eight-member IPDC Bureau.

India has been re-elected as Bureau's Rapporteur for a two–year term—1990 and 1991. India was elected as member of Inter-governmental Council for the third four-year term (1990-93) at UNESCO General Conference in Paris in November 1989. India also served six-year term as Bureau's Vice Chairman representing Asia Pacific region.

PRESS COUNCIL OF INDIA

Press Council is a statutory body established under the Press Council Act, 1978, charged with the primary responsibility 'to preserve the freedom of the press' and 'to maintain and improve standards of newspapers and news agencies in India' It is comprised mainly of representatives from the newspapers who are charged with the responsibility of regulating the conduct of their brethren The Council has thus come to assume the role of a self-regulating body of the newspapers themselves

The Council has the power to consider complaints *suo moto*, in addition to inquiring into complaints brought before it. It has also been empowered to make observations against any authority including Government if it considers it necessary for the performance of its functions. The Council registers cases also, some of which are dismissed at the preliminary stages and others are disposed of by way of adjudications Justice R.S Sarkaria is presently the chairman of the Council

RESEARCH AND REFERENCE DIVISION

Research and Reference Division functions as an information servicing agency to the Ministry of Information and Broadcasting, its media units and their field offices It serves as an information bank as well as an information feeder service to the media units to help in their programming and publicity campaigning work The Division also studies trends in mass communication media and maintains a reference and documentation service on current affairs and mass communication. The Division is lineal descendent of Foreign Publicity and Planning Office and Counter Propaganda Directorate, both World War II creations. The Division was abolished shortly after it came into being following a cut-motion in Central Legislative Assembly. It was revived on 9 August 1950 and was given the following tasks (a) to undertake research on matters of publicity, (b) to provide guidance and background notes on current affairs and other topics, (c) to build up a compendium of knowledge on important subjects and (d) to prepare publicity material for the use of various media units of Ministry of Information and Broadcasting.

The Division compiles on regular basis backgrounders, reference papers, diary of events, etc., on events and issues of public importance as well as biographical sketches of eminent personalities in different fields of national life. It also compiles annually a comprehensive book of reference: *India - A Reference Annual.* The Annual contains information on India's geographic and demographic features; its polity and economy; its plan and programmes for socio-economic development, etc. The Annual has been coming out regularly since 1953 and is rated high as a book of reference on India.

The Division maintains a well-stocked library which is being widely used by accredited press correspondents and media persons. Built around the library is a whole range of documentation activity, under which books, articles appearing in journals, reports and reference papers received from the ministries, departments and a number of public and private institutions are indexed and catalogued subjectwise. A separate unit scrutinises leading newspapers in the country to take out clippings on a variety of current events and issues and indexes them subjectwise. This vast storehouse of evergrowing information material is put to use for preparing background and reference papers and for meeting special day-do-day queries and demands from the media units of the Ministry, other ministries and departments of the Government and the pressmen

The National Documentation Centre on Mass Communication was set up as part of the Division in 1976 with the broad objective of collecting, interpreting and disseminating information relating to the agencies, events and trends in the field of mass communication, including press, radio, television, advertising, traditional and folk media and different media units of the Central and state governments. The Centre documents and indexes all news items, articles and other information material on mass communication and mass media. It also disseminates the information collected by it through nine regular documentation services. The Centre brings out a reference annual on mass communication, under the title *Mass Media in India.*

PHOTO DIVISION

Photo Division is engaged in photographically documenting the socio-economic development in the country and providing visual support required in communication. It has a valuable collection of photographic negatives of archival value on major news events. It is the largest unit of its kind in the country. The Division provides photographic prints for internal and external publicity. The caption and the positive print albums are maintained in a separate photo library under the Press Information Bureau. The library is the main feeding channel to the outside agencies. The Division has a well-equipped colour laboratory to meet the requirements of colour prints.

The Division supplies newsworthy black and white photographs of important national and international events to the Press Information Bureau for distribution to the press in the country and missions abroad.

The Division undertakes photo coverage of visits abroad by Prime Minister and other VIPs and transmits radio photos of the coverages for publicity in the Indian press.

Photographs are supplied free to press through the Press Information Bureau and on payment to various Government departments, non-publicity organisations and members of public for their use. The Division also provides training to the photographers from Commonwealth countries under the Colombo Plan. Photo Division has its main office at New Delhi and regional offices at Bombay, Calcutta and Madras.

PUBLICATIONS DIVISION

Publications Division provides up-to-date and authentic information on all subjects of national importance to readers at home and abroad through books, albums, journals in English, Hindi and major Indian languages. It has emerged as the largest publishing house in the public sector.

The Division was set up as a part of the Home Department in January 1941 and was known as the foreign branch of the Bureau of Public Information. In 1943, it was transferred to the Department of Information and Broadcasting and was redesignated as the Publications Division in December 1944.

The aims of the Division are: (1) to disseminate information about the country's development in various fields; (2) to facilitate national integration by promoting greater awareness and understanding among the people of different regions adhering to different faiths and beliefs, and (3) to stimulate interest in and to generate appreciation of and respect for the variegated pattern of life and culture in India.

The books, albums and journals brought out by the Division cover subjects as varied as art and culture, flora and fauna, travel and tourism, biographies of eminent persons, speeches of national leaders, etc., and children's literature. The publications also include books on popular science, education, history, besides reference work and other specialised literature.

Another important work of the Division is compilation and editing of the writings of Mahatma Gandhi, both in English and Hindi. Ninety volumes in the main series and Vols.I and II of the supplementary series in English and eighty one volumes in Hindi have been published so far.

The Division has so far brought out over 6,400 books and volumes in Hindi, English and major regional languages. On an average, it now publishes about 80 to 100 titles a year. The Division continues to publish the series of low-priced books under the title, 'Books for Millions'.

The Division publishes 20 journals. These journals are being brought out in English, Hindi and ten regional languages. *Employment News* brought out in English, Hindi and Urdu commands a paid circulation of about 4 lakh copies a week. The other important journals are *Yojana, Kurukshetra, Ajkal* and the children's monthly *Bal Bharati*. The Division is also a publisher of *Mass Media in India* and *India - Reference Annual* compiled by Research and Reference Division. The Division has launched ambitious publishing programme in close cooperation with UNICEF adding a new dimension to its activities.

The Division instituted Bharatendu Harishchandra Award in 1983. The award is given to Indian writers every year to encourage original and creative writings in Hindi on various disciplines of mass communication, *viz.*, print and electronic media, journalism, etc. The first, second and third prize winning entries carry an amount of Rs 25,000, Rs 15,000 and Rs 10,000 respectively, besides a *Maan Puruskar* of Rs 5,000.

Total revenue of the Division in 1989-90 was expected to reach Rs 11.61 crore, Rs 2.86 crore more than that of 1988-89.

AUDIO-VISUAL MEDIA

Feature films are being produced in India since 1912-13. While R.G. Torney along with N.G. Chitre made *Pundalik* in 1912, Dhundiraj Govind Phalke (1870-1944) produced *Raja Harishchandra* in 1931 The era of silent films was overtaken by the talkie era in 1931 when Ardeshir Irani (1886-1969) produced *Alam Ara*, though silent movies continued to be produced till 1934. India now leads the world in the annual output of feature films

CENTRAL BOARD OF FILM CERTIFICATION

Films can be publicly exhibited in India only after they have been certified by the Central Board of Film Certification (CBFC). The Board set up under the Cinematograph Act, 1952 consists of a chairman and minimum of 12 and a maximum of 25 non-official members, all appointed by Government. The Board functions with headquarters at Bombay and six regional offices at Bangalore, Bombay, Calcutta, Hyderabad, Madras and Trivandrum. The regional offices are assisted in the examination of films by Advisory Panels which include eminent educationists, art critics, journalists, social workers, psychologists, etc. The Board examines films for certification in accordance with the provisions contained in the Cinematograph Act, 1952, Cinematograph (Certification) Rules, 1983 and the guidelines issued by the Central government in this regard. In 1988, the Board certified 773 Indian and 118 foreign feature films, 1,662 Indian and 486 foreign short films, 5 Indian and 4 foreign long films other than feature. During the same period, the Board certified 41 Indian feature films, 66 Indian and 434 foreign short films, 42 Indian and 6 foreign long films other than feature, all in video.

Film Certification Appellate Tribunal (FCAT), constituted in March 1984, hears appeals against the decision of the Central Board of Film Certification. The headquarters of the Tribunal is at New Delhi.

FILMS DIVISION

Films Division is the largest national agency devoted to the production and distribution of documentaries and news magazines. The Division was set up in 1948 to revive the production of newsreels and documentary films. It produces news magazines, documentaries and 16 mm feature films for rural audience in regional languages. It also produces cartoon films and educational-cum-instructional films for agriculture, defence, family welfare and other departments of the Government.

The distribution outlets for these films are Doordarshan, theatrical circuits having a weekly audience of about ten crore and non-theatrical circuits consisting of field publicity units of Central and state governments and other non-theatrical exhibition channels like educational institutions, industrial houses, social and cultural organisations, film societies, etc. It is estimated that about four to five crore rural audience is exposed to these films every week.

The films are screened abroad through the Indian embassies, television network, government departments, educational, cultural and social organisations.

The Division makes films through in-house directions and also associates talent from the open market in some of its productions. During April-December 1989, the Division produced 46 documentary/short films, featurettes and 18 news magazines. Four films were also purchased from independent producers.

The Division releases prints of one documentary film and one news magazine alternately every week for public exhibition through cinema houses. They are required to screen such films not exceeding 609.8 metres (2,000 ft) under the compulsory exhibition scheme. During January to December 1989, 34 documentaries, 43 quickies and 25 news magazines were released in theatrical circuit. It supplied 48,891 prints of documentaries/news magazines and 21,744 prints of family welfare films for theatrical screening. The Division also accepted for release 5,719 prints of 40 documentaries and 52 newsreels produced by different state governments.

The Division has taken up production of a 30-episode serial on science astronomy–*A Journey through the Universe*—under the guidance of eminent scientist Dr. J.V. Narlikar.

The Division continues the production of 16 mm rural-based featurettes in languages and dialects of the tribal and other backward areas of southern and eastern regions of the country at its regional production centres at Bangalore and Calcutta. So far, 61 featurettes have been produced. Out of these three, namely, *Alokar Abhan*, *Baan* and *Story of Tiblu* have won national awards as the best regional films. The Division has a separate unit for making cartoon films including animation sequences for documentaries and news magazines. The newsreel unit of the Division produces news magazines which cover important national as well as international events.

Films produced for the Division have won national and international awards. The Division has bagged 3 International awards in Portugal and Iran, 4 National awards for 5 films in the 36th National Films Festival 1989, 5 International Certificates/Diploma and 1 IDPA Excellence Award for Best Documentary of the Year.

The branch offices of the Films Division have film libraries of 16 mm prints of documentary films and newsreels. During January to December 1989, 11,510 prints and 1,410 cassettes were sold and a revenue of Rs 65.73 lakh (including sale of stock shots) was earned. During the same period, 1,524 prints were supplied to 491 borrowers for film shows. The branch offices also arranged 23 shows in various parts of the country for special invitees.

Films Division also organises festivals of its films in state capitals/ important cities for the benefit of educational institutions in particular and people at large. Two such festivals were organised at Udaipur and Indore. It organised its first International Documentary/Short Filim Festival in Bombay from 1-7 March 1990.

The revenue earned by the Division during April to November 1989 through rentals from cinema houses, sale of prints, stock shots, waste films, etc., amounted to Rs 726.72 lakh.

The Division also participated in the Nehru Centenary celebrations organised by IMPCC by showing documentary films on Pandit Nehru. It released the first cassette of films on Nehru.

NATIONAL FILM DEVELOPMENT CORPORATION

National Film Development Corporation (NFDC) is the Central agency to promote good cinema in the country. It was set up on 11 April 1980 with the amalgamation of the erstwhile Film Finance Corporation and Indian Motion Picture Export Corporation. The primary aim of the Corporation is to plan, promote and organise the integrated development of the country's film industry. NFDC provides a wide range of services to help encourage and develop good cinema. These include: (a) giving loans for production of feature films and documentaries, (b) financing cent per cent projects to be directed by eminent personalities in the field. (c) co-producing and co-financing films with renowned foreign film producers and (d) co-production with Doordarshan.

THEATRE FINANCING

NFDC has Theatre Financing Scheme to ensure creation of additional seating capacity in the country and to provide outlets to good cinema being supported by the Corporation. NFDC continued its thrust on tie-up of joint financing of theatres with scheduled banks as well as with regional film development corporations.

IMPORT AND DISTRIBUTION OF FOREIGN FILMS

NFDC acts as a canalising agency for import of foreign films. The films brought by MPEAA/SOVEXPORT FILM/NRIs and private Indian citizens in the film market are canalised through the Corporation. NFDC itself imports foreign films and distributes them throughout India. NFDC also aquires video rights of good foreign films for duplication and distribution of the recorded cassettes in the country. NFDC imports 50 to 60 films a year. It has imported about 500 films so far.

FIGHTING VIDEO PIRACY

To fight video piracy, NFDC in collaboration with the Indian film industry, formed an anti-piracy body, Indian Federation Against Copyright Theft (INFACT) on the lines of Federation Aganist Copyright Theft (FACT) in UK. INFACT has been registered as a company under the Companies Act.

EXPORT ACTIVITIES

NFDC exports Indian films. Its direct exports have shown a continuous upward trend and reached over Rs 960 lakh including direct exports worth Rs 120 lakh by November 1989.

TECHNICAL SERVICES

NFDC's subtitling centre at Vashi, Bombay, is the only film subtitling centre in the country. It provides services to Doordarshan and private and government agencies. The setting up of this unit has helped in saving foreign exchange. The subtitling work is done in foreign languages such as Italian, Spanish, French, German, English and Japanese. The work of subtitling for the Festivals of India in France and Japan was done at the centre. During 1988-89, 112 films and 22 video films were subtitled. The Corporation's video centre at Madras is fully equipped to transfer films on video with high broadcast quality. The film centre at Calcutta provides production and post-production facilities on 16 mm and subsequent blowing up to 35 mm to ensure an impetus to the growth of 16 mm film culture resulting in cost saving.

RAW STOCK

NFDC is the canalising agency for import and distribution of cinematograph films (unexposed) of all types and sizes, excluding black and white positive and sound negative films. It is also sponsoring agency for films and associated equipment. NFDC monitors the import of various equipment from time to time by different film makers and also recommends concession in customs duty, wherever applicable.

NATIONAL FILM CIRCLE

NFDC has set up a National Film Circle (NFC) at Bombay for the screening of outstanding and award winning films from the National Archive collection and films of Great Masters, both Indian and foreign. There is paid membership for this Circle. The Corporation plans to spread the growth of good cinema movement through the NFC concept to other state capitals.

DOCUMENTATION

The Corporation has started collecting basic information on about 20,000 films produced so far in the country and has also taken up documentation of various film literature. The Corporation publishes *Cinema in India* - an analytical and meaningful film magazine. It also has a well-stocked library of books and journals on films.

DIRECTORATE OF FILM FESTIVALS

Directorate of Film Festivals was set up in 1973 under the Ministry of Information and Broadcasting to help promote good cinema and Indian films in the country and abroad. Functions of the Directorate are to organise: (a) international film festivals; (b) national film festivals; (c) film weeks under cultural exchange, and (d) participation in international festivals abroad. It also gives away National film awards and organises special film programmes.

The Directorate was brought under NFDC in July 1981 and in July 1988 it was again transferred to Ministry of Information and Broadcasting.

Another major policy change was elimination of the the Competition Section in the 12th International Film Festival of India (IFFI) held in January 1989. Because of the Competition Section having been dropped, the festival organised at Calcutta was rechristened as 21st IFFI with reduced duration *i.e.*, from a fortnight to 10 days only. It attracted a total of 231 films from 46 countries.

The 36th National Film Festival was held in May 1989. The *Dada Saheb Phalke* award for the year was presented to Ashok Kumar. As part of the year-long Festival of France in India, programmes of French films were arranged at several places.

NATIONAL FILM ARCHIVE OF INDIA

Established in February 1964 as a media unit of Ministry of Information and Broadcasting, the primary objective of National Film Archive is to acquire and preserve the heritage of national cinema and the best of world cinema. The Archive has made considerable progress in the preservation of film/audio/video material, documentation and research and dissemination of film culture in the country. The Archive's collection has 11,628 films, 18,434 books. 223 periodicals, 20,124 scripts, 75,083 press clippings, 6,857 pamphlets/folders, 78,365 stills, 1,822 disc records, 115 audio tapes, 415 video cassettes, 1,975 micro films, 2,644 slides, 5,830 wall posters and 4,734 song booklets. Notable among its acquisitions are several early/silent/talkie films from India and abroad, as well as recent award winning films and representative works of some of the masters of world cinema. It has been acknowledged as one of the major film archives in the Asian region, on par with established archives in Europe and North America.

The Archive's "Film Circle" programme of weeklv screenings at Bombay, Bangalore, Calcutta, Trivandrum, Bhopal and Pune exposes interested local audience to the best films from India and abroad. To commemorate the platinum jubilee of Indian Cinema, NFAI organised photo exhibitions depicting the evolution of cinema in the country at various centres. NFAI also organises film appreciation course at Pune every year to stimulate a serious interest in the systematic understanding of cinema as a medium of art and communication. In addition, the Archive conducts five to eight short courses of five to ten days duration in various parts of the country.

The Archive functions as the main repository for Indian and foreign research workers for viewing film classics in connection with their research projects. The Archive Distribution Library with a representative collection of Indian and foreign film classics cater to over 300 film societies and film study groups in educational institutions in the country. The Archive also sponsors research projects pertaining to the study of various aspects of Indian Cinema. It plans to bring out Indian Filmography (1900-85) shortly. NFAI is a member of the International Federation of Film Archives. It has helped NFAI in establishing fruitful contacts with film archives abroad and obtaining foreign film classics under the archival exchange programme besides expert guidance on problems relating to film preservation, restoration, computerisation and retrieval of archival data.

With headquarters at Pune, NFAI has at present three regional offices functioning at Bangalore, Calcutta and Trivandrum.

CHILDREN'S FILM SOCIETY, INDIA

Children's Film Society, India (CFSI) was established in 1955 as an autonomous body with the objective to provide the children and the young people films with clean and healthy entertainment. It is engaged in production, acquisition, distribution and exhibition of such films.

Since its inception CFSI has produced and acquired 97 feature films and 178 short films The Society has launched a new programme to carry cinema to the rural and urban areas to involve greater participation of younger generation in children film movement. CFSI continues to organise week-long festivals in several districts in collaboration with district authorities and welfare organisations. Fifteen such festivals were conducted in 1989-90. The Society has gained recognition over the years by organising international children's film festivals in India and by participating in film festivals abroad. First International Children's Film Festival was organised in Bombay in 1979, second in Madras in 1981, third in Calcutta in 1983, fourth in Bangalore in 1985 and the fifth in Bhubaneshwar in 1987. The Sixth International Competitive Children's Film Festival was held in New Delhi in November 1989, coinciding with the birth centenary celebrations of Pandit Jawaharlal Nehru. Indian International Children's Film Festival has been accorded 'A' category by the International Centre of Films for Children and Young People (ICFCYP), Paris.

WELFARE OF CINE-WORKERS

Parliament had passed three Acts in 1981 for amelioration of the lot of cine-workers. These are :(i) the Cine-Workers Welfare Cess Act, (ii) the Cine-Workers and Cinema Theatre Workers (Regulation of Employment) Act and (iii) the Cine-Workers Welfare Fund Act. All of these came into force in 1984 when the Rules under the respective Acts were framed and notified.

The Cine-Workers Welfare Cess Act, 1981 and the Rules framed thereunder, provide for a levy of cess of Rs 1,000 per feature film submitted for certification to Central Board of Film Certification.

The Cine-Workers Welfare Fund Act, 1981 *inter alia* aims at welfare of weaker sections of cine-workers by providing for dispensaries, maternity centres and educational and recreational facilities, etc., by film producers/ film studios and sanction of grants-in-aid from welfare fund. Benefit of different schemes under 'education'and 'health' had since been extended during 1986-87 by Ministry of Labour to which the work relating to administration of these Acts had been transferred from April 1986.

The Cine-Workers and Cinema Theatre Workers (Regulation of Employment) Act, 1981 which extends to whole of India came into force from 1 October 1984. Administration of this Act was transferred to Ministry of Labour from Ministry of Information and Broadcasting from 1 April 1986.

The Act provides necessary safeguards to low-paid artists and technicians engaged in production of feature films with regard to their terms and conditions of employment, payment of wages and other amenities. The Act stipulates that no person shall be employed as a cine-worker unless an agreement in writing is entered into with him by the producer of a film or the contractor and such an agreement is registered with competent authority notified by Government.

The Act provides for appointment of conciliation officers and competent authorities by Central government for mediating and promoting settlement of disputes between cine-workers and producers of films. It also provides for constitution of 'cine-workers tribunals' by Central government for adjudication of disputes referred to them relating to any matters specified in the agreement.

So far, Central government has notified the appointment of conciliation officers and competent authorities in all major film producing states. Also, 'cine-workers tribunal' has been set up at Madras for Tamil Nadu.

The Cine-Workers and Cinema Theatre Workers (Regulation of Employment) Act, 1981 was amended in 1988 by the Cine-Workers and Cinema Theatre Workers (Regulation of Employment) Amendment Act, 1988 which came into force from 16 August 1988. By the above amendment, a new Section 22-A was inserted with a view to delegating powers of Central government exercisable under the Act to state governments to ensure greater efficiency in enforcement of the Act. Subsequently, all powers exercisable by Central government except powers conferred by Section 23 (powers to make Rules) have been delegated to state governments.

ADVERTISING AND VISUAL PUBLICITY

Directorate of Advertising and Visual Publicity (DAVP) is engaged in publicising policies, programmes and performances of various ministries (except Railways), departments and autonomous bodies through widest range of communication media such as press advertising; printed publicity material like posters, folders, brochures, booklets, etc., outdoor publicity like hoardings, kiosks, cinema slides, wall paintings and transit advertising, audio-visual media such as radio and television commercials, short advertisement films and photographic exhibitions. It is one of the biggest advertising agencies in the country using nearly 3,000 newspapers and periodicals for press advertising. The Directorate has 40 field exhibition units including seven mobile vans and two exhibition rail coach units, besides two regional distribution centres at Calcutta and Madras. Its exhibitions are designed and fabricated for display all over the country. It has one of the largest direct mail services and can readily reach 15.53 lakh addresses.

MULTI-MEDIA PUBLICITY

DAVP launches multi-media publicity campaigns to inform and educate the people on matters of immediate and long term interest as well as to motivate them to participate in the national programmes for social change and economic development. During 1988-89, major publicity campaigns were organised on important socio-economic themes such as health and family welfare, agriculture and rural development, conservation of power and energy, environment, national integration and communal harmony, uplift of the weaker sections and removal of social and economic evils. Particular efforts were made to extend the media reach to remote and far-flung areas. Radio and TV commercials, exhibitions and outdoor media were used to support these campaigns in the rural and semi-urban areas. Publicity support was also given to national and international events like the Teachers' Day, birth anniversaries of Mahatma Gandhi, Jawaharlal Nehru and Indira Gandhi, World Health Day, 40th anniversary of the Universal Declaration of Human Rights, India 1989 World Philatelic Exhibition, National Agriculture Fair 1989 and Supreme Court's award on Bhopal gas tragedy.

A vigorous publicity campaign was undertaken in Punjab to foster the spirit of secularism and national unity especially through the outdoor media. Special campaigns were launched to mark the centenary celebrations of such well-known national personalities as Adi Shankaracharya, Dr. S. Radhakrishnan, Maulana Abul Kalam Azad, Govind Ballabh Pant and Jawaharlal Nehru. Extensive publicity was undertaken to promote the family welfare programmes. The major thrust of the publicity was on 'Spacing of Children', 'Right Age of Marriage', 'Male Responsibility', 'Two Children Norm', 'Immunization' and 'Mother and Child Health Care'. Publicity campaigns for the control of diseases like Tuberculosis, STD, AIDS, Leprosy, Diarrhoea and Malaria were further intensified. Press publicity was also undertaken on behalf of the Ministry of Defence to motivate the youth of the country to join the armed forces.

A special campaign was initiated to inculcate a sense of national pride among the people by highlighting the achievements of the country in different fields. As part of the Communication Plan 1989-90, two new exhibitions were designed and produced for countrywide display: (a) 'Development and Democracy at People's Doorstep' and (b) 'Bharat Mahan'. A number of posters, booklets and folders detailing the progress made by the country in different areas were also printed. A series of informative press advertisements on the same and one giving the salient features of the Panchayati Raj Bill and the Nagarpalika Bill were released all over the country on different occasions including the Independence Day, Gandhi Javanti Day and Nehru Jayanti Day. Outdoor publicity media of wall paintings and cinema slides were also used to publicise 'Jawahar Rozgar Yojana' and 'Strides in Agriculture'.

EXHIBITIONS

The Directorate organised 550 exhibitions throughout the country during 1988-89, specially in rural and remote areas, prominent fairs, festivals, congregations, social and religious meets. These exhibitions were visited by over two crore people, of which 50 per cent came from rural and semi-urban areas.

The major thrust of the exhibitions was to promote national integration and communal harmony; family welfare; to project the aims, objectives and achievements of the 20-Point Programme-1986, and the all round development of the country in the last few decades.

To mark the birth centenary celebrations of Jawaharlal Nehru, an exhibition of his life, works, achievements and contribution towards modernising India was produced and put up for display all over the country from November 1988. The exhibition proved to be extremely popular. Over 250 Nehru exhibitions have been displayed so far in different parts of the country. Another exhibition which caught the public attention was *The Ganga* which was put up for display at the famous *Purna Kumbha Mela* held at Allahabad during January-March 1989. An estimated 40 lakh people visited this pavilion. The highlights of the year were the international exposure received by DAVP at the first ever Global Convention of Non-resident Indians at New York in August 1989 where DAVP put up its exhibition titled *Bharat Mahan*. DAVP also participated in the International Festival of Youth held at Pyongyang (DPR Korea) in June 1989 and in the Children's Festival held at Ulan Bator (Mangolia) in July 1989 with its prestigious exhibitions *India Marches Ahead* and *Pt. Nehru - The Architect of Modern India.*

ADVERTISEMENTS

DAVP releases annually about 17,000 to 18,000 advertisements to various newspapers and journals on behalf of various ministries (except Railways) and departments of the Government of India. A large number of autonomous bodies and public sector undertakings also channelise their advertisements through DAVP. A balanced and an equitable placing of advertisements is aimed at, keeping in view the advertising policy of the Government, publicity requirements and the availability of funds. DAVP maintains a panel of newspapers in almost all the Indian languages for release of government advertisements. Presently, about 3,000 publications are on DAVP's panel. An annual rate contract is entered with the individual newspapers for release of press advertisements. There is a separate list of newspapers to which the UPSC advertisements are released. This list also contains newspapers in almost all Indian languages. In 1988, Government appointed a committee under the Principal Information Officer to review the existing Advertising Policy. The recommendations of the committee are under consideration.

PRINTED PUBLICITY

DAVP brings out publicity literature in English, Hindi and 11 regional languages, namely, Assamese, Bengali, Gujarati, Kannada, Malayalam, Marathi, Oriya, Punjabi, Tamil, Telugu, and Urdu. During the period April 1988 to March 1989, nearly two crore copies of printed publicity items like booklets, folders, posters, etc., were produced for free distribution. Some of the important booklets/brochures/folders brought out in the current year include 'Bhopal Gas Tragedy-Basis of the Supreme Court's Award', 'Indian Economy', 'Indian Industry', 'Technology for People', 'Nehru-The Maker of Modern India', 'Unity and Integration' (by Smt. Indira Gandhi) and 29 important speeches of the Prime Minister delivered on different occasions including his speeches on 'Panchayati Raj and Nagarpalika Bill', 'Jawahar Rozgar Yojana', Nehru Rozgar Yojana' and the 'Launching of Agni'.

MASS MAILING

Mass Mailing Wing of the Directorate distributed 1.4 crore items of printed publicity material during 1988-89. Distribution was done from the headquarters at New Delhi and regional distribution centres at Bombay, Calcutta and Madras, either through direct mail to individuals/institutions or by bulk supply to organisations for further distribution in their respective areas. The mailing library of DAVP consists of 15.53 lakh direct mail addresses spread over 542 categories, including rural categories like primary/middle schools, panchayats, post offices, block development offices, rural bank branches and cooperative societies.

OTHER MEDIA OF PUBLICITY

Publicity for various campaigns is also carried out through the commercial channels of All India Radio and Doordarshan as well as outdoor media like wall paintings, hoardings, cinema slides, kiosks, bus/train/tramcar panels, tin stencils, banners and stickers, etc. During 1988-89, the Directorate put out as many as 1,876 radio spots, jingles and sponsored programmes in 12 languages for broadcast on different themes. In addition 229 video spots/video quickies and motivational programmes covering different subjects of national importance were produced in various languages for telecast over the commercial channels of Doordarshan as well as to meet the publicity needs of the client departments/ministries. Total number of broadcasts and telecasts was 11,395 and 110 respectively.

FIELD PUBLICITY

Directorate of Field Publicity (DFP) is the largest rural-oriented interpersonal communication medium in the country which seeks to project the policies and programmes of the Government. It endeavours to inform the people of the plans and schemes formulated for their benefit. The field publicity personnel work in widely diverse areas. On an average, one field publicity unit has to cover nearly 27 lakh people living in 2,308 villages spread over an area of 11,600 sq km.

The basic objectives of DFP are to secure involvement of people in development programmes, to foster national cohesion and communal harmony and to facilitate smooth transformation especially in backward, remote and tribal areas. The Directorate is a two-way channel of communication. On one hand, it disseminates information and motivates people, on the other it gathers spontaneous feedback on the basis of face-to-face communication and transmits this to the concerned ministries and other media units in the form of 'public reaction reports', 'special situation reports' and 'success stories'. The units seek to achieve the basic objectives of development, transformation through skillful synthesis between the traditional and modern forms of communication and judicious use of various media techniques like films, song and drama programmes, photo exhibitions, display and distribution of print material, conducted tours of opinion leaders, public meetings, group discussions, seminars, symposia, debates, essay competitions, etc. The field units also conduct publicity compaigns on themes like national integration, communal harmony, health and family welfare, and socio-economic programmes. DFP units utilise important occasions, national events, fairs and festivals for coverage. The Directorate functions at three levels *viz.*, (a) headquarters in New Delhi; (b) regional offices at state capitals/important cities/towns, and (c) field publicity units. Directorate has 22 regional offices and 257 field units.

Of these, 72 concentrate their activities in the border areas and 30 carry out intensive publicity on family welfare in the areas where population growth rate is comparatively high.

During the period 1 January 1988 to 30 September 1989, Directorate organised 1,23,211 film shows, 83,373 photo exhibitions, 20,649 song and drama programmes and 1,21,666 group discussions. In addition, 13,201 other programmes like seminars, symposia, debates, elocution contests and competitions were organised. Total audience covered during the period was more than 10 crore.

SONG AND DRAMA DIVISION

Song and Drama Division set up in 1954 utilises the traditional, folk and contemporary stage forms like puppets, plays, dance-dramas, ballets, ballads, *harikathas* for the purpose of social communication projecting the developmental activities. It has the advantage of an instant rapport with the people and the flexibility to incorporate new ideas and convictions.

The Division has 43 departmental troupes including the Central Drama Troupe. Besides, it has about 580 registered parties consisting of eminent performers in various performing arts all over the country to organise programmes of national importance.

In 1976 Light and Sound Wing of the Division was established at Delhi. Second such unit was set up at Bangalore during 1980-81. The programme of the wing is an art of theatre panosonic which has proved very successful because more than 10,000 spectators can witness a performance without any loss of audio or visual quality of the performance at a time. It has presented programmes on eminent persons like Guru Nanak Dev, Subramania Bharati, Bahadur Shah Zafar and modern themes like *Sehar Hogi* on fimily welfare.

Sound and Light programmes on *Begum Hazrat Mahal, Bharat Ratna Indira Maa* on the life and times of Indira Gandhi and *Azadi Ki Pehli Jang* were also presented.

The Division set up a tribal centre at Ranchi during 1981 covering Madhya Pradesh, Bihar and Orissa in order to bring the tribals of these states into the national mainstream.

Its Armed Forces Entertainment Wing was established in 1967 with a view to entertaining jawans posted in forward areas. Border publicity troupes stationed at international boundaries of the country perform for village folk living in these remote areas.

TRAINING

Training in mass communication is available in a number of institutions in the country. There are twenty five universities which offer degree/diploma certificate courses in this field.

STAFF TRAINING INSTITUTE (PROGRAMME)

Staff Training Institute (Programme) of All India Radio, New Delhi imparts in-house training to programme and administrative personnel and guest trainees from foreign broadcasting organisations.

Special efforts are made to train programmers in the planning, production and management techniques. On an average 36 courses of various kinds are conducted in a year in order to update and enrich the knowledge and skill of the programme personnel.

The Institute has six regional training centres at Hyderabad, Shillong, Lucknow, Ahmadabad, Cuttack and Trivandrum. The regional training centres cater to the training needs of the announcers, transmission executives, production staff and also programme executives.

STAFF TRAINING INSTITUTE (TECHNICAL)

Staff Training Institute (Technical) has the responsibility of imparting in-service training to the engineers of AIR and Doordarshan. The Institute conducts basic induction courses for the new entrants and also arranges refresher courses and specialised task/equipment-oriented courses for various categories of staff to keep them abreast with the up-to-date technology inducted into AIR and Doordarshan networks. Trainees from several countries are accommodated in the above courses under SCAAP, ITEC, Colombo Plan and other technical cooperation schemes. During 1989, 55 training courses were conducted imparting training to about 900 persons.

FILM AND TELEVISION INSTITUTE OF INDIA

Film and Television Institute of India (FTII) located at Pune imparts technical training in the art of filmmaking. It also provides in-service training to the personnel of Doordarshan.

The Institute conducts three-year specialisation courses in (i) Motion Picture Photography, (2) Film Direction and (3) Sound Recording and Sound Engineering with one year integrated training. The course in Film Editing is of two year' duration with one year integrated training.

The Television Wing offers training to Doordarshan personnel in (1) TV Programme Production, (2) Studio Technical Operations, (3) TV Films and (4) TV Graphics and Design.

FTII conducts a one month course in Film Appreciation jointly with National Film Archive of India every vear. A General Course in Cinema is organised for the students of National School of Drama from 1 July 1989. The Institute also offers short term courses.

INDIAN INSTITUTE OF MASS COMMUNICATION

Indian Institute of Mass Communication (IIMC) was set up in August 1965 as a centre for advanced study in mass communication. It is an autonomous body registered under the Indian Societies Registration Act. The Institute is managed by a society which is reconstituted every two years. It derives funds from the Ministry of Information and Broadcasting.

The Institute conducts two regular training courses and four regular diploma courses. They are: (1) Orientation course for officers of the Indian Information Service; (2) Broadcast Journalism course for personnel of AIR and Doordarshan; (3) Post-graduate Diploma Course in Journalism; (4) Post-graduate Diploma Course in Advertising and Public Relations; (5) Post-graduate Diploma Course in Journalism (Hindi), and (6) Diploma

Course in News Agency Journalism for Non-aligned countries. In addition to Indian students, candidates sponsored under various Government of India technical assistance schemes are also admitted to the Post-graduate Diploma Course in Journalism. The Diploma Course in News Agency Journalism is for working journalists from non-aligned countries, but nominees of the two national news agencies are also admitted to this course. The Institute also conducts a number of short term courses in areas of special interest.

IIMC has a well-equipped library and documentation unit. Audio-visual facilities have been developed to meet specific training needs. A laboratory press caters to the training and publication needs of the Institute. The Institute brings out a quarterly journal *Communicator* in English and *Sanchar Madhyam* in Hindi, besides other publications.

The research and evaluation departments contribute towards the understanding of the communication process, its practices and their wider social, economic and political implications within the Indian context.

12 Basic Economic Data

INDIA is rich in natural resources and manpower. These resources have, however, not been exploited fully and are capable of greater utilisation. Indian economy is still predominantly agricultural. Agriculture has acquired a remarkable resilience in the last decade. About one-third of national income is derived from agriculture and allied activities employing about two-third of the working force. Since 1947, national endeavour has been to diversify economy.

NATIONAL AND PER CAPITA INCOMES

National income is defined as the sum of incomes accruing to factors of production supplied by normal residents of the country before deduction of direct taxes. It is identically equal to net national product at factor cost. Table 12.1 gives estimates of national and per capita incomes at current and 1980-81 prices. Table 12.2 gives national product and related aggregates at current prices. Table 12.3 gives performance of public sector. Table 12.4 gives private final consumption expenditure, net domestic saving and capital formation since 1980-81.

CATEGORIES OF WORKERS

For 1981 census, population was divided into main workers (classified into four broad industrial categories), marginal workers and non-workers (figures of only these broad groups are available). In 1971 census, population was divided into workers and non-workers. There were nine categories of workers, shown in table 12.5. It shows number of workers and non-workers in rural and urban areas as on 1 March 1981 as compared to those on 1 April 1971. Employment in organised sector has been shown in table 12.6.

UNEMPLOYMENT

Number of persons on the live registers of employment exchanges gives an idea of the trend of unemployment subject to certain limitations. Employment exchanges cover mainly urban areas. Registration with employment exchanges being voluntary, not all the unemployed register their names in exchanges. Further, some registrants already employed get registered for better employment. Number of job-seekers on live registers of employment exchanges increased from 197.53 lakh as on 31 December 1982 to 327.76 lakh on 31 December 1989. Table 12.7 gives registrations, vacancies, placements and job-seekers on the live register for the period 1988-89 (as on 31 December).

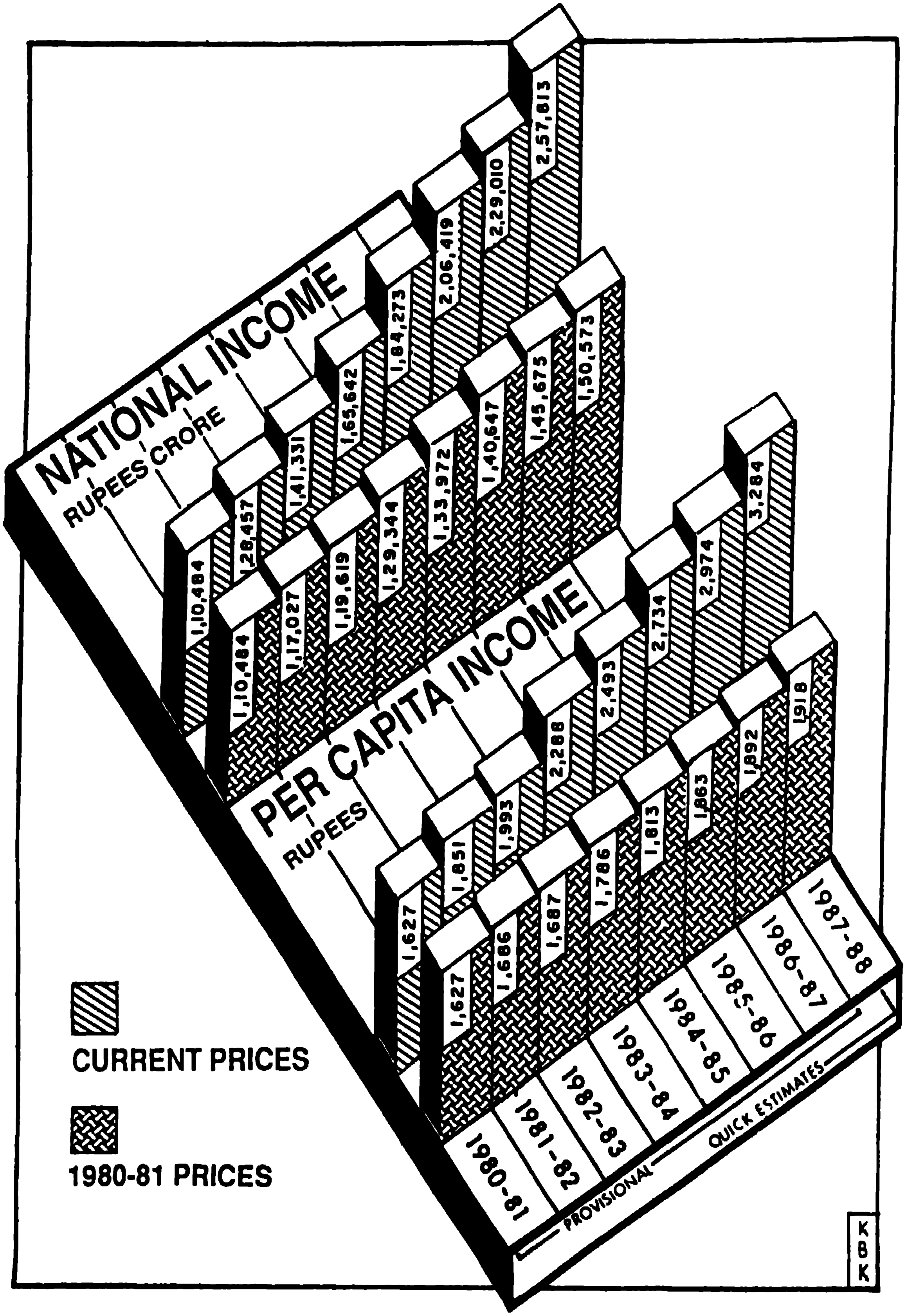
NATIONAL INCOME
RUPEES CRORE
1,10,484
1,28,457
1,41,331
1,65,642
1,84,273
2,06,419
2,29,010
2,57,813
1,10,484
1,17,027
1,19,619
1,29,344
1,33,972
1,40,647
1,45,675
1,50,573
PER CAPITA INCOME
RUPEES
1,627
1,851
1,993
2,288
2,493
2,734
2,974
3,284
1,627
1,686
1,687
1,786
1,813
1,863
1,892
1918
1980-81
1981-82
1982-83
1983-84
1984-85
1985-86
1986-87
1987-88
PROVISIONAL
QUICK ESTIMATES
▨ CURRENT PRICES
▩ 1980-81 PRICES
KBK

TABLE 12.1 NATIONAL AND PER CAPITA INCOME AT FACTOR COST

(Rs crore)

Item	1980-81	1981-82	1982-83	1983-84[1]	1984-85[1]	1885-86[1]	1986-87[1]	1987-88[2]
Net national product at factor cost (Rs crore)								
at current prices	1,10,484	1,28,457	1,41,331	1,65,642	1,84,273	2,06,419	2,29,010	2,57,813
at 1980-81 prices	1,10,484	1,17,027	1,19,619	1,29,344	1,33,972	1,40,647	1,45,675	1,50,573
Per capita net national product (Rupees)								
at current prices	1,627 2	1,851 0	1,993 4	2,287 9	2,493 0	2,734 0	2,974 2	3,284.2
at 1980-81 prices	1,627 2	1,686 2	1,687.2	1,786 5	1,812.9	1,862 9	1,891 9	1,918 1
Index number of net national product with 1980-81 as base								
at current prices	100 0	116 3	127 9	149 9	166 8	186 8	207 3	233.3
at 1980-81 prices	100 0	105 9	108.3	117 1	121 3	127 3	131 9	136.3
Index number of per capita net national product with 1980-81 as base								
at current prices	100 0	113 8	122 5	140 6	153 2	168.0	182 8	201.8
at 1980-81 prices	100 0	103 6	103 7	109 8	111 4	114 5	116 3	117 9
Gross national product at factor cost (Rs crore)								
at current prices	1,22,571	1,42,916	1,58,217	1,84,871	2,06,357	2,32,634	2,58,875	2,91,501
at 1980-81 prices	1,22,571	1,29,815	1,33,214	1,43,813	1,49,365	1,56,975	1,62,997	1,68,919
Index number of gross national product with 1980-81 as base								
at current prices	100 0	116 6	129 1	150 8	168 3	189 8	211 2	237.8
at 1980-81 prices	100 0	105 9	108 7	117 3	121 9	128 1	133.0	137 8

1. Provisional estimates
2. Quick estimates.

TABLE 12.2 NATIONAL PRODUCT AND RELATED AGGREGATES

(at current prices)

(Rs crore)

Item	1980-81	1981-82	1982-83	1983-84[1]	1984-85[1]	1985-86[1]	1986-87[1]	1987-88[2]
(a) Gross national product at factor cost	1,22,571	1,42,916	1,58,217	1,84,871	2,06,357	2,32,634	2,58,875	2,91,501
(b) Add indirect taxes less subsidies	13,586	16,544	18,737	20,866	22,810	28,444	32,728	37,158
(c) Gross national product at market prices (a+b)	1,36,157	1,59,460	1,76,954	2,05,737	2,29,167	2,61,078	2,91,603	3,28,659
(d) Less consumption of fixed capital	12,087	14,459	15,886	19,229	22,084	26,215	29,865	33,688
(e) Net national product at market prices (c−d)	1,24,070	1,45,001	1,60,068	1,86,508	2,07,083	2,34,863	2,61,738	2,94,971
(f) Less net factor income from abroad	(+) 345	(+) 40	(−) 634	(−) 944	(−) 1,424	(−) 1,429	(−) 1,805	(−) 1,805
(g) Net domestic product at market prices (e−b)	1,23,725	1,44,961	1,60,702	1,87,452	2,08,507	2,36,292	2,63,543	2,96,776
(h) Net domestic product at factor cost	1,10,139	1,28,417	1,41,965	1,66,586	1,85,697	2,07,848	2,30,815	2,59,618
(i) Less income from entrepreneurship and property accruing to government administrative departments	554	687	1,425	1,153	1,936	2,441	3,824	—
(j) Less saving of non-departmental enterprises	(−) 820	(−) 46	504	471	942	1,373	1,664	—
(k) Income from domestic product accruing to private sector (h−i−j)	1,10,405	1,27,776	1,40,036	1,64,962	1,82,819	2,04,034	2,25,327	—
(l) Add national debt interest	1,524	1,911	2,713	3,739	5,008	6,155	7,632	9,722
(m) Add net factor income from abroad	(+) 345	(+) 40	(−) 634	(−) 944	(−) 1,424	(−) 1,429	(−) 1,805	(−) 1,805
(n) Add current transfers from government administrative departments	2,835	3,370	4,008	4,640	5,733	6,994	8,335	—

(Rs crore)

Item		1980-81	1981-82	1982-83	1983-84[1]	1984-85[1]	1985-86[1]	1986-87[1]	1987-88[2]
(o)	Add other current transfers from the rest of the world (net)	2,257	2,221	2,527	2,774	3,101	2,821	3,037	—
(p)	Private income (k+l+m+n+o)	1,17,366	1,35,318	1,48,650	1,75,171	1,95,237	2,18,535	2,42,526	—
(q)	Less saving of private corporate sector, net of retained earnings of foreign companies	584	495	568	390	795	1,467	486	—
(r)	Less corporation tax	1,378	1,970	2,185	2,493	2,556	2,865	3,160	
(s)	Personal income (p-q-r)	1,15,404	1,32,853	1,45,897	1,72,288	1,91,886	2,14,203	2,38,880	—
(t)	Less direct taxes paid by households	2,197	2,491	2,650	2,862	3,250	3,709	4,206	—
(u)	Less miscellaneous receipts of government administrative departments	303	389	479	506	900	1,267	1,188	—
(v)	Personal disposable income (s-t-u)	1,12,904	1,29,973	1,42,768	1,68,920	1,87,736	2,09,227	2,33,486	2,63,505

Note: Available data does not permit separation of fees, fines, etc., paid by producers and to that extent personal disposable income is under estimate.

1. Provisional.
2. Quick estimates—estimates for all the aggregates not available.

TABLE 12.3 PERFORMANCE OF PUBLIC SECTOR

(at current prices)

(Rs crore)

Item	1980-81	1981-82	1982-83	1983-84[1]	1984-85[1]	1985-86[1]	1986-87[1]	1987-88[2]
Gross domestic product	1,22,226	1,42,876	1,58,851	1,85,815	2,07,781	2,34,063	2,60,680	2,93,306
Public	24,171	29,857	36,240	42,241	49,140	58,079	68,821	79,894
Private	98,055	1,13,019	1,22,611	1,43,574	1,58,641	1,75,984	1,91,859	2,13,412
Share of public to total (per cent)	19.8	20.9	22.8	22.7	23.6	24.8	26.4	27.2
Gross domestic saving	28,773	33,668	34,670	41,041	45,201	55,150	63,426	66,650
Public	4,654	7,254	7,822	6,781	6,533	8,592	8,018	6,193
Private	24,119	26,414	26,848	34,260	38,668	46,558	55,408	60,457
Share of public to total (per cent)	16.2	21.5	22.6	16.5	14.5	15.6	12.6	9.3
Gross domestic capital formation[3]	31,016	41,036	41,704	46,946	53,241	68,010	71,408	74,405
Public[4]	14,000	17,735	20,449	22,026	26,399	30,697	35,255	35,786
Private	17,016	23,301	21,255	24,920	26,842	37,313	36,153	38,619
Share of public to total (per cent)	45.1	43.2	49.0	46.9	49.6	45.1	49.4	48.1
Final consumption expenditure	1,12,167	1,28,811	1,42,963	1,66,937	1,85,963	2,05,524	2,33,562	2,62,384
Public Administration	13,084	15,355	18,272	21,141	24,352	29,174	35,070	41,327
Private households and non-profit institutions	99,083	1,13,456	1,24,691	1,45,796	1,61,611	1,76,350	1,98,492	2,21,057
Share of public to total (per cent)	11.7	11.9	12,8	12.7	13.1	14.2	15.0	15.8

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1. Provisional estimates.
2. Quick estimates.
3. Unadjusted for errors and omissions
4. Including net purchase of second-hand physical assets.

TABLE 12.4 PRIVATE CONSUMPTION, SAVING AND CAPITAL FORMATION

Year	Private final consumption expenditure in domestic market (Rs crore)		Per capita[1] private final consumption expenditure in domestic market (Rs crore)		Net domestic saving (Rs crore)	Rate of Saving[1] (per cent)	Net domestic capital formation (Rs crore)		Rate of capital formation (per cent)
	at current prices	at 1980-81 prices	at current prices	at 1980-81 prices	at current prices	at current prices	at current prices	at 1980-81 prices	at current prices
1980-81	99,083	99,083	1,459	1,459	16,686	13.5	18,780	18,780	15.2
1981-82	1,13,456	1,03,574	1,635	1,492	19,209	13.3	21,820	19,633	15.1
1982-83	1,24,691	1,06,604	1,759	1,504	17,784	11.1	20,350	17,099	12.7
1983-84[2]	1,45,796	1,14,533	2,014	1,582	21,812	11.6	24,329	18,182	13.0
1984-85[2]	1,61,611	1,18,306	2,187	1,601	23,117	11.1	26,409	18,007	12.7
1985-86[2]	1,76,350	1,22,488	2,336	1,622	28,935	12.2	35,169	22,407	14.9
1986-87[2]	1,98,492	1,29,121	2,578	1,677	33,561	12.7	38,656	22,919	14.7
1987-88[3]	2,21,057	1,34,133	2.816	1,709	32,962	11.1	39,402	21,825	13.3

1. Per cent of net domestic product at market prices
2. Provisional estimates
3. Quick estimates

TABLE 12.5 POPULATION BY CATEGORIES OF WORKERS AND NON-WORKERS

(In crore)

	Rural	Urban	Total
1981 Census			
Total Population[1]	52.55	15.97	68.52
	(43.91)	(10.91)	(54.82)
Total marginal[2]	2.09	0.12	2.21
Total workers[2]	17.64[3]	4.61[3]	22.25[3]
	(14.85)	(3.20)	(18.05)
(i) Cultivators	9.02	0.23	9.25
	(7.66)	(0.17)	(7.83)
(ii) Agricultural labourers	5.27	0.28	5.55
	(4.56)	(0.19)	(4.75)
(iii) Livestock, forestry and fishery	0.42	0.08	0.50
	(0.38)	(0.05)	(0.43)
(iv) Mining and quarrying	0.08	0.05	0.13
	(0.06)	(0.03)	(0.09)
(v) Manufacturing and processing	1.15	1.36	2.51
	(0.82)	(0.89)	(1.71)
(vi) Construction	0 18	0.19	0.37
	(0.11)	(0.11)	(0.22)
(vii) Trade and commerce	0.49	0.92	1.41
	(0.36)	(0.64)	(1.00)
(viii) Transport, storage and communication	0 19	0.42	0.61
(ix) Other services	0.84	1.07	1.91
	(0.78)	(0.80)	(1.58)
Non-workers[2]	31.03	11.04	42.07
	(29.06)	(7.71)	(36.77)

1. Includes the projected population of Assam, where the census was not held in 1981 owing to disturbed conditions and excludes that portion of Jammu and Kashmir which is under the illegal occupation of Pakistan and China
2. Excludes Assam and that portion of Jammu and Kashmir which is under the illegal occupation of China and Pakistan.
3. Relates to the main workers of the 1981 census which are comparable with the total workers of the 1971 census. In the 1981 census, workers were classified into main workers and marginal workers and non-workers

Figures in parenthesis relate to the 1971 census

TABLE 12.6 EMPLOYMENT IN ORGANISED SECTOR

(In lakh)

	March 1976	March 1977	March 1978	March 1979	March 1980	March 1981	March 1982	March 1983	March 1984	March 1985	March 1986	March 1987	March 1988(P)
Public Sector													
Central Government	30.47	30.82	30.96	31.34	31.78	31.95	32.49	32.66	33.11	33.29	33.46	33.50	33.80
State Governments	48.97	50.20	51.60	53.09	54.78	56.76	58.53	60.38	61.54	62.80	64.73	66.66	67.80
Quasi-Governments	33.92	36.75	39.29	41.70	43.43	45.76	48.12	50.40	52.74	54.97	56.74	57.95	59.48
Local Bodies	19.85	19.89	20.15	20.63	20.80	20.37	20.33	21.11	21.30	21.64	21.90	22.14	22.11
Total	133.22	137.66	142.00	146.76	150.78	154.84	159.46	164.56	168.69	172.69	176.83	180.25	183.19
Private Sector (non–agricultural)													
Larger establishments (employing 25 or more workers)	61.13	61.37	63.22	64.65	64.84	66.00	67.33	67.29	65.26	64.79	65.47	65.32	65.44
Smaller establishments (employing 10 to 24 workers)	7.31	7.30	7.21	7.42	7.43	7.95	8.14	8.24	8.19	8.31	8.25	8.31	8.48
Total	68.44	68.67	70.43	72.08	72.27	73.95	75.47	75.52	73.45	73.09	73.73	73.64	73.92
Grand Total	201.65	206.34	212.43	218.84	223.05	228.79	234.93	240.08	242.14	245.78	250.56	253.88	257.10

P. Provisional.

Note: In some cases totals may not tally due to rounding off.

TABLE 12.7 REGISTRATIONS, VACANCIES, PLACEMENTS AND JOB-SEEKERS ON THE LIVE REGISTER

(As on 31 December)

Year	Number of employment exchanges[1]	(Lakh)				
		Registera-tions	Vacancies notified	Placements	Live Register	Percentage increase in Live Register over previous year
1980	638	61 58	8 38	4.78	162.00	13 0
1981	663	62.77	8 97	5 04	178 38	10 1
1982	692	58 63	8 20	4 73	197 53	10.7
1983	726	67 56	8 26	4 86	219 53	11 1
1984	745	62.20	7 08	4 07	235.47	7 3
1985	800	58 21	6 75	3 88	262 70	11 6
1986	821	55 35	6 23	3 51	301 31	14 7
1987	835	60.12	6 01	3 34	302 47	0 4
1988	840	59.63	5 43	3 28	300 50	0.7
1989	849	65 76	6 00	2 89	327 76	9.1

Note: Total may not tally due to rounding-off

1. Including University Employment Information and Guidance Bureaux

NATIONAL SAMPLE SURVEY ORGANISATION

National Sample Survey (NSS) was set up in 1950 with a programme of conducting large scale surveys to provide data for national income estimation and for planning and policy formulation. It has since grown into one of the largest organisations of its kind in the world. Today it is a major fact-finding body and occupies a unique position in nation's statistical system. Over the years, it has enlarged and diversified data-base, especially in areas vital for development planning. NSS carries out annually socio-economic surveys covering various facets of population. It also undertakes field work of Annual Survey of Industries and carries out sample checks of area and yield of crops to improve quality of estimation of agricultural production, prepared by states. Its total number of personnel is now about 6,000 having over 170 offices spread throughout the country.

NSS was reorganised in 1970 and all aspects of its work were entrusted to a single government agency National Sample Survey Organisation (NSSO) under overall direction of a governing council with requisite independence and autonomy in the matter of collection, processing and publication of data. Besides chairman, the council comprises five academicians, six officials of 'user departments' in Centre and states and six functionaries of Department of Statistics.

It is headed by a chief executive officer who is also the member secretary of the council. It has four functional divisions, namely: (i) survey design and research, (ii) field operations, (iii) data processing and (iv) data analysis and publication. Each division is under the charge of a director assisted by a team of statisticians and supporting staff.

The subject programme of socio-economic surveys conforms to a well defined cycle of surveys extending over a period of ten years. These include surveys on: (i) demography, health and family welfare, (ii) assets, debt and investment, (iii) land-holdings and livestock enterprises, to be repeated once in ten years, (iv) employment, rural labour and consumer expenditure and (v) unorganised enterprises in non-agricultural sector, to be repeated once in five years. The five groups of subjects cited above cover in all seven years out of a ten-year programme. Remaining three years out of a decade are kept open for undertaking surveys on subjects unexplored so far as also to accommodate special requests from Centre and states. In recent years, changes had to be made in this programme to accommodate follow-up surveys to Economic Census 1977 and 1980 and to survey on social consumption. Because of this and other developments, it is proposed to redefine this cycle. Surveys on other subjects of interest to users are either integrated with one of the foregoing surveys or taken in a year open to other topics.

The Central sample is about 9,000 villages and 5,000 urban blocks at the first stage from which a sample of about 1.5 lakh households is selected. States and union territories participate in socio-economic surveys at least on an equal matching basis.

Collection of data for Annual Survey of Industries (ASI) is a regular annual feature of its activities and is being conducted under statutory provisions of the Collection of Statistics Act, 1953, and Collection of Statistics (Central) Rules, 1959, covering all factories registered under Section 2M(i) and 2M(ii) of the Factories Act, 1948, electricity undertakings registered with Central Electricity Authority and *bidi* and cigar establishments registered under the Bidi and Cigar Workers (Conditions of Employment) Act, 1966.

Data collected under ASI relates to capital structure, employment and emoluments, consumption of fuels and lubricants, raw material and other inputs, outputs, value added by manufactured labour statistics, housing statistics and other characteristics of factories/establishments to meet requirements of various users in government and outside. ASI 1987-88 was taken up from October 1988, with a gross allotment of 72,000 factories.

Role of NSSO in agricultural statistics is to provide technical guidance to states for conducting crop estimation survey and to keep a continuous watch on quality of agricultural statistics collected by them with a view to suggesting measures for their improvement.

A scheme for improvement of crop statistics was introduced in 1973-74 with a view to locating through joint efforts of Central and state authorities, deficiencies in the system of collection of crop statistics and to suggest remedial measures. Under the scheme, sample checking of primary field work relating to area enumeration and area aggregation in approximately 5,000 villages and supervision of about 15,000 crop-cutting experiments is undertaken in every agricultural year by NSSO. States also participate in this programme on a matching basis.

Field work for 43rd round (July 1987-June 1988) of NSSO survey on employment, unemployment and consumer expenditure covering the entire country excepting Ladakh and Kargil districts of Jammu and Kashmir and rural areas of Nagaland, was completed in June 1988. Besides the enquiry undertaken at the instance of Ministry of Tourism to collect data on travel habits of people was also completed in June 1988. Information collected under 43rd round of survey among other things, will help Government in formulating policies and programmes to create adequate avenues of employment aimed at raising income levels of people and to improve their living standard. In all, 8,474 villages and 4,637 urban blocks were surveyed in Central sector. States and union territories participated in the programme, at least on matching basis.

A survey on living condition of tribals, housing condition and building construction activity was launched during 44th round (July 1988 - June 1989) of NSSO. It covered the whole country except Ladakh and Kargil districts of Jammu and Kashmir. Survey on living condition of tribals was designed to provide information on demographic characteristics, education, activity status, health care and morbidity, consumer expenditure and particulars of economic activities pursued by tribal population, particulars of immigration and ownership of land by non-tribals in tribal areas. Besides general information on village characteristics was also collected. For housing condition, details were collected on living accommodations available to households and information about environment in which the dwelling units were located. Survey on construction activity was confined to current building construction in household sector and included addition, alteration and improvement undertaken by households. Aspects on nature, type and source of finance of building construction were also subjects of detailed investigation. Sample size was of the order of 7,760 villages, 1,128 special sample villages selected from tribal-dominated areas and 4,836 urban blocks all over the country. States participated in the programme, at least on matching basis.

45th round survey which commenced from 1 July 1989 is devoted to a survey on non-directory manufacturing establishments and own-account enterprises. In the 46th round (July 1990-June 1991) subject of enquiry will be non-directory trading establishments and own-account trading enterprises.

Survey results are brought out in form of reports. So far, nearly 350 reports have been brought out. In the past, survey results were brought out only in form of individual reports each covering a particular aspect for all states. This resulted in considerable delay on account of compilation and printing. To help reduce this delay, NSSO started a quarterly journal *Sarvekshana* from July 1977. This journal presents all results of NSSO as and when they are ready for publication to make them available to readers with minimum possible delay. Analytical articles based on results previously published are also included in the journal. For priority users, reports in mimeographed form are also available much in advance.

PRICES

Under revised index numbers of wholesale prices (with base 1970-71 = 100), commodities are distributed under three major groups, namely: (i) primary articles, (ii) fuel, power, light and lubricants and (iii) manufactured products. Groups are further divided into sub-groups.

Primary articles group is broadly comparable with two groups of old classification *viz.*, "food articles" and "industrial raw materials" with certain minor adjustments. Third group "manufactured products" contains sub-groups under which semi-manufactured and manufactured products have been classified.

Table 12.8 gives index numbers of wholesale prices for 1971-72, 1976-77 and from 1980-81 to 1988-89 with revised base (1970-71 = 100).

CONSUMER PRICES

Table 12.9 shows consumer price index numbers for industrial workers fo 1970-71 to 1988-89 along with indices for some selected centres (tabl 12.10) out of 50 centres covered and a weighted average thereof give all-India index.

In 1985-86, all-India general index showed an increase of 38 points over that of previous year. During 1986-87, all-India general index rose by 54 points and all-India food index by 62 points. During 1987-88, all-India general index rose by 62 points and all-India food index by 67 points.

ECONOMIC CENSUS AND SURVEYS

With a view to removing data gaps in unorganised sectors of non-agricultural economy, Central Statistical Organisation launched in 1977 a Central plan scheme of economic census and surveys. Census was to provide basic information on location, activitv. employment, etc., and follow-up surveys on detailed information on each sector.

Two economic census have been carried out so far. First one was conducted in 1977 in collaboration with state governments and union territory administrations. It covered all agricultural establishments *viz.*, enterprises employing at least one hired worker on fairly regular basis. Based on the pattern of this census two follow-up surveys covering directory establishments engaging six and more workers were conducted, one in 1978-79 on unorganised manufacturing sector and the other in 1979-80 on trade, transport, hotels and restaurants, storage and warehousing and services sectors. Non-directory establishments engaging one to five workers and own-account enterprises were covered in 33rd and 34th rounds of NSSO.

Second economic census was conducted in 1980 along with house-listing operations of 1981 population census. It covered all establishments excluding enterprises engaged in crop production and plantation in all states/UTs except Assam where census could not be conducted. This was followed up by a survey in 1983-84 covering own-account enterprises as well as establishments in transport, hotels and restaurants, storage and warehousing and services sectors. Two other surveys covering larger establishments were conducted, one in 1984-85 on unorganised manufacturing and the other in 1985-86 on trade. Non-directory establishments and own-account enterprises in these two surveys were covered in 40th and 41st rounds of NSSO.

According to 1980 economic census there were 169 lakh enterprises (58.4 per cent rural) engaged in non-agricultural activities. This sector generated employment for 507 lakh persons (43.3 per cent rural). In the enterprise survey carried out in 1983-84 covering hotels and restaurants, transport, storage and warehousing and services sectors, total number of enterprises at all-India level was estimated at 38 lakh (53.2 per cent rural). Services sector contributed the largest share of 56.6 per cent followed by hotels and restaurants 26.3 per cent and transport 17.0 per cent. Employment generation was highest in services sector 56.5 per cent followed by hotels and restaurants 31.8 per cent and transport 11.6 per cent.

Survey on unorganised manufacturing carried out in 1984-85 revealed that there were 197 lakh enterprises. Employment generated by this sector was of the order of 369 lakh persons.

The 1985-86 survey on trade showed that there were 2.0 lakh directory establishments engaged in this sector. It generated employment for over 16 lakh, 88.4 per cent in urban and 11.6 per cent in rural areas.

Third economic census planned for 1986 could not be conducted due to resource constraints. However, in order to continue follow-up surveys, 1980 economic census frame was updated in 1987-88 in 64 towns/cities showing problems of identification due to industrialisation. On the basis of updated frame a survey covering own-account enterprises as well as establishments in hotels and restaurants and transport sectors, was conducted in 1988-89. Another survey covering directory establishments in unorganised manufacturing was started on 1 October 1989. Non-directory establishments as well as own-account enterprises are being covered in 45th round of NSSO which started on 1 July 1989.

In the 46th round to be conducted from July 1990 to June 1991, focus will be on an enquiry on wholesale and retail trade. It will cover entire country and be carried out in 15,040 villages and 17,000 urban blocks (towns) covering nearly five lakh trading enterprises. In union territories 32 sample villages and 544 urban blocks will be surveyed during the period.

Third economic census will start in 1990 along with house-listing operations of 1991 population census. As in 1980 economic census, this will cover establishments and own-account enterprises in both non-agricultural and agricultural sectors excluding crop production and plantation. House-listing, the first phase of 1991 population census, has already commenced from 1 April 1990.

TABLE 12.8 INDEX NUMBER OF WHOLESALE PRICES

(Base· 1970-71=100)

Item	Weight	1971-72	1976-77	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
I. Primary Articles	416.67	100.9	167.2	237.5	264.4	273.9	304.1	324.4	331.0	348.5	382.6	411.1
Food Articles	297.99	101.1	155.3	207.9	235 1	249.6	283.1	297 4	317 7	338 7	367.3	408 0
Non-Food Articles	106.21	98.6	167.4	217.7	240.5	244.6	281.6	319 6	287.0	305.4	385.6	380.1
Fibres	31.73	106.6	184.9	179 7	215 7	199 5	227.8	303.4	231.3	194.7	286.8	306.4
Oilseeds	42.01	89.9	150.8	230 7	253.8	250.5	302 0	322 4	285.3	347 4	444 6	396 2
Minerals	12 47	115.4	449.4	1,110.2	1,168 6	1,105 6	994.0	1,015 1	1,030 2	948 8	720 5	748.7
II. Fuel, Power, Light & Lubricants	84.59	105.9	230.8	354.3	427 5	459.7	494.8	518.4	579 9	619 2	642 0	677.4
III. Manufactured Products	498 74	109.5	175.2	257.3	270 6	272.1	295 8	319 5	342 6	359.4	384.4	414 4
Food Products	133.22	118.4	189.1	308 7	298.9	260.0	298.9	323.8	346 2	351.8	412.7	419.2
Beverages, Tobacco and Tobacco Products	27.08	106.8	168.2	210 7	217.4	218.7	246 2	254.0	296 9	348.0	360.4	379 0
Textiles	110.26	109.6	155.3	221.7	223 9	232.8	249.6	280 1	275 8	271.3	298 3	329 6
Paper & Paper Products	8.51	110.4	180 1	262.2	282.2	299.7	325 8	363.5	378.3	392.6	405 8	430.2
Leather & Leather Products	3.85	101.3	227.8	380.1	368.0	361 3	385 9	413 6	491.6	513.4	539.3	611.1
Rubber & Rubber Products	12.07	101.7	157 2	248.8	284.1	306 1	316.6	335.3	360 6	381.6	398.6	414.8
Chemicals & Chemical Products	55.48	101.5	171 4	241.3	260 2	269.2	281.6	292.1	310 9	329.0	352.7	374.1
Non-Metallic Mineral Products	14.15	109.3	191.0	278.7	311.7	373.7	404.1	430.6	450.9	447.9	457 7	473.6
Basic Metals, Alloys and Metal Products	59.74	104.7	190.1	272 1	317.1	354.6	381.0	419.8	477.1	478.7	511 9	598.6
Machinery and Transport Equipment	67.18	105.3	170.1	239.4	265.1	277.9	289.6	303.6	337.9	355.8	372.2	413.0
Miscellaneous Products	7.20	102.5	166.0	232.8	239.5	243 2	256.9	269.7	281.8	286.7	293.9	313.4
IV. All Commodities	1,000.00	105.6	176 6	257.3	281 3	288.7	316.0	338.4	357.8	376.8	405 4	435.3

TABLE 12.9 CONSUMER PRICE INDEX NUMBER FOR INDUSTRIAL WORKERS

Year	Bombay	Ahmadabad	Calcutta	Madras	Kanpur	Delhi	All India	
							All Items	Food
Linking factor	5.12	4.78	4.74	5.05	4.69	4.97	4 93	4.98
1970-71	182	176	182	170	190	199	186	201
1971-72	190	181	187	182	196	211	192	205
1972-73	203	198	197	203	212	222	207	223
1973-74	233	245	228	229	251	265	250	279
1974-75	289	305	288	301	323	337	317	358
1975-76	300	293	287	314	299	333	313	342
1976-77	298	281	297	288	294	332	301	317
1977-78	318	310	320	311	330	358	324	345
1978-79	325	323	331	318	337	368	331	347
1979-80	359	348	351	350	357	389	360	373
1980-81	400	376	382	388	396	426	401	419
1981-82	460	441	414	446	439	472	451	476
1982-83	502	487	447	475	473	508	486	508
1983-84	564	544	511	550	528	551	547	581
1984-85	609	570	576	576	554	597	582	607
1985-86	654	599	610	630	614	648	620	638
1986-87	717	657	671	681	672	707	674	700
1987-88	791	724	714	756	725	788	736	767
1988-89	856[1]	763[1]	783[1]	802[1]	763[1]	852[1]	786[1]	820[1]
	171[2]	163[2]	172[2]	167[2]	172[2]	177[2]	166[2]	172[2]

1 Average based on six months' indices only—April-September 1988 on 1960 base.

2. Average based on six months' indices only—October 1988-March 1989 on 1982 base.

Note: Old series (1960 = 100) has been replaced by new series (1982 = 100) from October 1988 Linking factors between 1960 series and 1982 series are operative from October 1988.

Source: Labour Bureau Series

TABLE 12.10 CONSUMER PRICE INDEX NUMBER FOR URBAN NON-MANUAL EMPLOYEES

(Base 1960 = 100)

Year	Bombay	Calcutta	Madras	Delhi/ New Delhi	All India
1970-71	168	170	175	174	174
1971-72	172	174	188	180	180
1972-73	183	180	203	190	192
1973-74	204	204	231	217	221
1974-75	241	238	291	262	270
1975-76	246	243	306	273	277
1976-77	255	251	294	274	277

TABLE 12.10 (Continued)

Year	Bombay	Calcutta	Madras	Delhi/ New Delhi	All India
1977-78	269	265	311	288	296
1978-79	285	279	321	303	306
1979-80	315	297	350	321	330
1980-81	347	331	390	352	369
1981-82	393	367	439	395	413
1982-83	440	384	470	428	446
1983-84	493	418	531	468	492
1984-85	538	451	577	508	532
1985-86	568	481	611	551	568
1986-87	612	530	671	597	613
1987-88[1]	666	562	736	645	656
1988-89[2]	130	135	141	135	136

1. Average is based on seven months' indices (April 1987-October 1987).
2. A new series of index numbers on base 1984-85 = 100 has been introduced from November 1987. All India index on new base may be converted to old base by multiplying the conversion factor 5.32. Conversion factors in respect of Bombay, Calcutta, Madras, Delhi/New Delhi are 5 38, 4.51, 5.77 and 5.08 respectively

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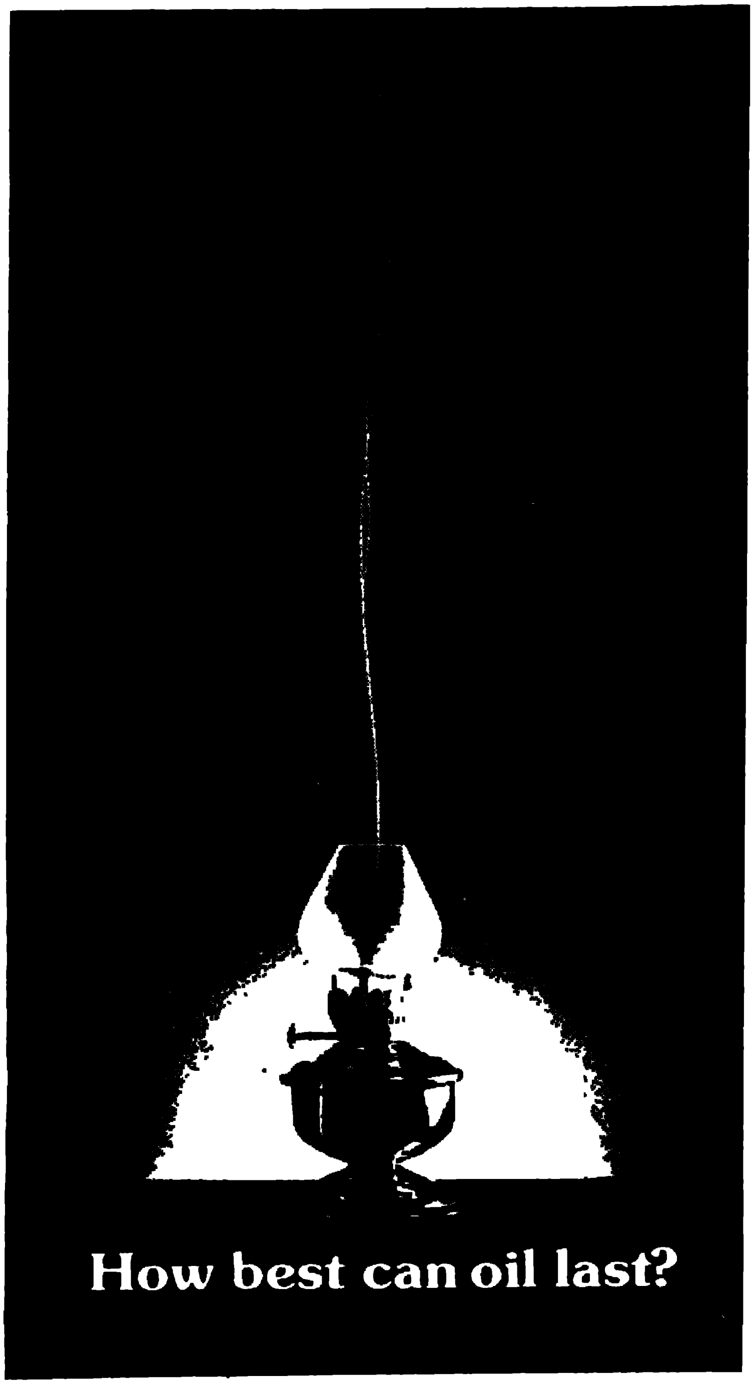

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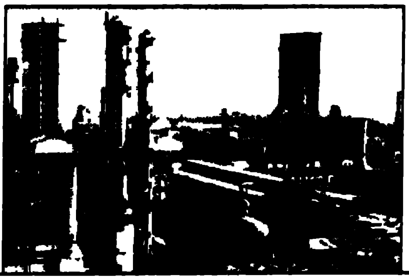

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13 Finance

MINISTRY of Finance is responsible for administration of finances of Government. It is concerned with all economic and financial matters affecting the country as a whole, including mobilisation of resources for development and other purposes It regulates expenditure of Government including transfer of resources to states. The Ministry comprises three Departments, namely, (i) Economic Affairs, (ii) Expenditure and (iii) Revenue.

Department of Economic Affairs consists of seven main divisions, namely, (i) Economic, (ii) Banking, (iii) Insurance, (iv) Budget, (v) Investment (vi) External Finance and (vii) Currency and Coinage. This Department *inter-alia* monitors current economic trends and advises Government on all matters of internal and external economic management including working of commercial banks, term lending institutions, investment regulations, external assistance, etc., preparation of the Budget of Union of India as well as state governments and union territory administrations with legislature when under President's rule and their presentation to Parliament is also the responsibility of this Department.

Department of Expenditure comprises eight main divisions, namely, (i) Plan Finance Division, (ii) Establishment Division, (iii) Cost Accounts Branch, (iv) Controller General of Accounts, (v) Finance Commission Division, (vi) Implementation Cell, (vii) Integrated Finance Division and (viii) Staff Inspection Unit.

Department of Revenue exercises control in respect of revenue matters relating to direct and indirect Union taxes through two statutory boards, namely, Central Board of Direct Taxes and Central Board of Excise and Customs. The Department is also entrusted with administration and enforcement of controls and regulatory measures provided in the enactments concerning Central sales tax, stamp duties, gold control, foreign exchange and other relevant fiscal statutes. Control over production and disposal of opium and its products is also vested with this Department.

ECONOMIC AFFAIRS

PUBLIC FINANCE

Power to raise and disburse public funds has been divided under the Constituion between Union and state governments. Sources of revenue for Union and states are, by and large, mutually exclusive, if shareable taxes and duties between them are excluded.

The Constitution provides that: (i) no tax can be levied or collected except by an authority of law; (ii) no expenditure can be incurred form public funds, except in the manner provided in the Constitution, and (iii) executive authorities must spend public money only in the manner sanctioned by Parliament in case of Union and by state legislature in the case of a state.

All receipts and disbursement of the Union are kept under two separate headings, namely, Consolidated Fund of India and Public Account of India. All revenues received, loans raised and money received in repayment of loans by the Union form Consolidated Fund. No money can be withdrawn from this Fund except under the authority of an Act of Parliament. All other receipts, such as deposits, service funds and remittances go into Public Account and disbursements therefrom are not subject to the vote of Parliament. To meet unforeseen needs, not provided in the Annual Appropriation Act, a Contingency Fund of India has been established under Article 267 (1) of the Constitution The Constitution provides for establishment of a Consolidated Fund, a Public Account and a Contigency Fund for each state.

The Railways, the largest public undertaking, present their budget separately to Parliament. Appropriations and disbursements under Railway budget are subject to the same form of Parliamentary control as other appropriations and disbursements. However, as the Railways have no separate cash balance of their own, total receipts and disbursements of the Railways are incorporated in the budget of the Union as part of General Budget.

SOURCES OF REVENUE

Main sources of Union revenue are customs duties, Union excise duties, corporate and income taxes. The Railways and the Posts and Telegraphs also pay the Union dividend on the capital invested in them.

Main heads of revenue in states are taxes and duties levied by state governments, share of taxes levied by the Union and grants received from the Union. Property taxes, octroi and terminal taxes are the mainstay of local finance.

TRANSFER OF RESOURCES

Devolution of resources from the Union to states is a salient feature of the system of federal finance of India. Apart from their share of taxes and duties, state governments receive statutory and other grants as well as loans for various development and non-development purposes. Total amount of resources transferred to states during each Plan period is shown in table 13.1.

ANNUAL FINANCIAL BUDGET

An extimate of all anticipated receipts and expenditure of the Union for ensuing financial year is laid before Parliament. This is known as 'Annual

Financial Statement' or 'Budget' and covers Central government's transactions of all kinds in and outside India occurring during the preceding year, the year in which the statement is prepared as well as the ensuing year or the 'Budget Year', as it is known.

TABLE 13.1 RESOURCES TRANSFERRED TO STATES

(Rs crore)

Period	Taxes and Duties	Grants	Loans (Gross)	Total
First Plan . .	344	288	799	1,431
Second Plan. .	688	789	1,411	2,868
Third Plan	1,196	1,304	3,100	5,600
Annual Plans				
1966-67	373	419	916	1,708
1967-68	417	471	869	1,757
1968-69	492	499	891	1,882
Fourth Plan .	4,562	3,831	6,708	15,101
Fifth Plan . . .	8,268	8,198	8,978	25,444
Annual Plan 1979-80	3,406	2,288	2,697	8,391
Sixth Plan	23,728	17,941	23,722	65,391
1985-86 . .	7,491	6,705	9,907	24,103
1986-87 .	8,475	7,353	7,685	23,513
1987-88	9,598	9,136	9,388	28,122
1988-89 (RE) .	10,669	10,034	10,133	30,836
1989-90 (BE)	12,438	10,995	11,220	34,653

RE Revised Estimates
BE Budget Estimates

Presentation of Budget is followed by a general discussion on it in both Houses of Parliament. Estimates of expenditure from Consolidated Fund of India are placed before the Lok Sabha in the form of 'Demands of Grants'. All withdrawals of money from Consolidated Fund are thereafter authorised by an Appropriation Act passed by Parliament every year. Tax proposals of Budget are embodied in a Bill which is passed as the 'Finance Act' of the year

Estimates of receipts and expenditure are similarly presented by state governments in their legislature before the beginning of the financial year and lagislative sanction for expenditure is secured through similar procedure. Budgetary position of the Union from 1987-88 onwards is shown in table 13.2

PUBLIC DEBT

Public debt includes internal debt comprising borrowings inside the country like market loans, compensations and other bonds, treasury bills issued to Reserve Bank, state governments, commercial banks and other parties as well as non-negotiable non-interest bearing rupees securities issued to international financial institutions: and external debt comprising loans from foreign countries, international financial institutions, etc. Table 13.3 gives an analysis of public debt at the end of selected years.

TABLE 13.2 BUDGETARY POSITION

(Rs crore)

		1987-88 (Actuals)	1988-89 (Budget Estimates)	1988-89 (Revised Estimates)	1989-90 (Budget Estimates)
1.	Revenue Receipts	30,037	42,798	43,135	52,630
2	Revenue Expenditure	46,174	52,640	54,165	59,642
3	Revenue Deficit	9,137	9,842	11,030	7,012
4	Capital Receipts	22,311	23,278	24,708	22,194
5	Capital Expenditure	18,990	20,920	21,618	22,519
6	Total Receipts	59,348	66,076	67,843	74,824
7	Total Expenditure	65,164	73,560	75,783	82,161
8	Overall Deficit	5,816	7,484	7,940	7,337

MONETARY AGGREGATE AND CURRENCY

Money supply comprises currency with public and demand deposits with banks including "other" deposits with Reserve Bank of India, withdrawable on demand. Trends in money supply and its components since 1970-71 are indicated in table 13.4

BANKING

Although some form of banking, mainly, money-lending type, has been in existence in India from ancient times. It was only a little over a century ago that modern banking took its birth. Earliest institutions which undertook banking business under the British regime were agency houses, which carried on banking business in addition to their trading activities. Most of these agency houses were closed down during 1929-32. A number of banks which came into existence between the thirties and forties of the last century were also in great trouble. Prominent among these were three presidency banks which were later amalgamated into Imperial Bank of India in 1919 following a banking crisis.

The first bank of limited liability managed by Indians was Oudh Commercial Bank founded in 1881. Subsequently, Punjab National Bank was established in 1894. *Swadeshi* movement which began in 1906 encouraged the formation of a number of commercial banks. Banking crisis in 1913-1917 and failure of 588 banks in various states during the decade ending in 1949, underlined the need for regulating and controlling commercial banks. The Banking Companies (Inspection Ordinance) was passed in January 1946 and the Banking Companies (Restriction of Branches) Act in February 1946. The Banking Companies Act was passed in February 1949 which was subsequently amended to read as Banking Regulation Act.

With a view to bringing commercial banks into the mainstream of economic development with definite social obligations and objectives, Government issued an Ordinance on 19 july 1969 acquiring ownership and

TABLE 13.3 PUBLIC DEBT OF GOVERNMENT OF INDIA

(Rs crore)

Item	As at the end of March								
	1982	1983	1984	1985	1986	1987	1988	1989 (RE)	1990 (BE)
1. Internal Debt (i to vi)	35,653	46,939	50,263	58,537	71,039	86,313	98,646	1,14,452	1,29,855
(i) Current Market Loans	18,461	22,232	26,270	30,366	35,241	40,759	46,623	53,873	61,273
(ii) Others[1]	309	429	520	551	545	516	454	764	686
(iii) Special Bearer Bonds	964	964	964	964	964	964	964	964	964
(iv) Treasury Bills	10,273	17,431	15,756	19,452	26,014	19,876	8,028	15,476	22,813
(v) Special Floating and other Loans[2]	1,536	1,673	2,183	2,554	3,088	4,331	5,400	6,199	6,942
(vi) Special Securities issued to RBI	4,110	4,210	4,570	4,650	5,187	19,867	37,177	37,177	37,177
2 External Debt	12,328	13,682	15,120	16,637	18,153	20,299	23,223	25,239	28,037
Public Debt (1+2)	47,981	60,621	65,383	75,174	89,192	1,06,612	1,21,869	1,39,692	1,57,892

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1. Comprises balance of expired loans, compensation and other bonds such as National Rural Development Bonds and Capital Investment Bonds Annuity certificates are excluded
2. These represent mainly non-negotiable non-interest bearing securities issued to international financial institutions like the International Monetary Fund, International Bank for Reconstruction and Development and Asian Development Bank

RE. Revised Estimates.

BE Budget Estimates

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TABLE 13.4 MONEY SUPPLY WITH THE PUBLIC

(Rs crore)

Last Frid of the Year	Currency with the Public				Deposit Money of the Public	
	Notes in circulation (a)	Circulation of rupee coins (b)	Circulation of small coins	Cash with banks	Demand deposit with banks	Other deposits with Reserve Bank (c)
1970-71	4,169	247	137	186	2,910	44
1975-76	6,492	331	224	343	6,385	54
1980-81	13,689	333	286	844	9,336	317
1983-84	19,888	386	333	1,054	13,195	318
1984-85	23,088	426	351	1,202	16,382	603
1985-86	25,519	531	409	1,291	18,180	251
1986-87	28,762	709	483	1,369	22,240	352
1987-88	33,812	839	541	1,542	23,855	297
1988-89	38,728	893	563[1]	1,721[1]	27,350	446[1]
1989-90 (May)	42,141	893[1]	563	1,854[1]	27,812	376[1]
1989-90 (June)	41,639	893[1]	563[1]	2,005[1]	29,035[1]	402[1]

(a) Data up to April 1985: net of return of about Rs 43 crore of Indian currency from Pakistan awaiting adjustment.

(b) Estimate: ten rupee commemorative coins issued since October 1969, two rupee coins issued since November 1982 and five rupee coins issued since November 1985 are included under rupee coins

(c): Excludes balances held in IMF Account No 1, Reserve Bank of India Employees' Provident Fund, Pension Fund and Cooperative Guarantee Fund amounts collected under the Compulsory Deposit Scheme, 1974 and extraordinary items

1. Provisional.

control of 14 major banks in the country, with deposits exceeding Rs 50 crore each. Six more commercial banks were nationalised from 15 April 1980.

Objectives of public sector banking system were outlined on 21 July 1969. Some of them are to: (a) mobilise savings of people to the largest possible extent and utilise them for productive purposes; (b) prompt operations of banking system by a larger social purpose and subject it to close public regulation; (c) legitimate credit needs of private sector industry and trade, big or small; (d) ensure that needs of productive sectors of the economy and in particular those of farmers, small scale industrialists and self-employed professional groups are met in an increasing manner; (e) ask nationalised banks to actively foster opportunities for hitherto neglected and backward areas in different parts of the country, and (f) curb the use of bank credit for speculative and other unproductive purposes.

RESERVE BANK OF INDIA

Reserve Bank of India (RBI) was established under the Reserve Bank of India Act, 1934 on 1 April 1935 and nationalised on 1 January 1949 Main objectives are regulating issue of bank notes, keeping foreign exchange reserves of the country, operating currency and credit system with a view to securing monetary stability in India and developing financial structure of the country on sound lines consistent with national socio-economic objectives and policies.

The Bank is the sole authority for issue of currency in India other than one rupee coins and subsidiary coins and notes. As the agent of Central government, Reserve Bank undertakes distribution of one rupee notes and coins, as well as small coins issued by Government. The Bank acts as banker to Central government, state governments, commercial banks, state cooperative banks and some financial institutions. It formulates and administers monetary policy with a view to promoting stability of prices while encouraging higher production through appropriate deployment of credit.

Reserve Bank plays an important role in maintenance of exchange value of the rupee and acts as an agent of Government in respect of India's membership of International Monetary Fund. The Bank also performs a variety of developmental and promotional functions.

COMPOSITION OF BANKING SYSTEM

Commercial banking system in India consisted of 274 scheduled[1]/commercial banks and four non-scheduled commercial banks at the end of June 1988. Of the scheduled commercial banks, 224 are in public sector and these account for 90 per cent of commercial banking system. Within public sector banking system, 196 banks are regional rural banks, specially set up to increase flow of credit to smaller borrowers in rural areas. These banks have specified areas of operations, usually limited to two to three districts. Their lending operations are also directed towards specified weaker sections. They also undertake some other commercial banking business. Remaining 28 banks in public sector are regular commercial banks and transact all types of commercial banking business. Some important indicators in regard to progress of commercial banking in India during the recent past are shown in table 13.5.

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[1] According to the notification under Reserve Bank of India Act, banks which have not less than Rs 5 lakh as capital and reserve can alone be scheduled by the Reserve Bank.

Amongst public sector banks as at the end of March 1989, State Bank of India (SBI) was the biggest unit with 7,862 branches and deposits of Rs 29,920 crore (excluding inter-bank deposits) and advances of Rs 19,542 crore (excluding inter-bank credits). Apart from State Bank of India, there are seven other banks called associate banks of State Bank of India. In these banks SBI owns either entire or majority of share capital. The State Bank and its associate banks as a group account roughly for one-third of aggregate banking business conducted by public sector banks (aggregate of deposits and advances) and over 29 per cent of aggregate business of entire banking system. Other 20 banks in public sector are known as nationalised banks, 14 of which came in public sector on 19 July 1969 and six others on 15 April 1980.

The philosophy of bank nationalisation was that these financial institutions which mobilised savings of public should broadly function as an instrument for promoting economic and social development in more purposive manner. In the post-nationalisation period, there has been a rapid growth of banking system.

DEPOSIT MOBILISATION

There has been a significant increase in deposits of scheduled commercial banks in the post-nationalisation period. At the end of June 1969, deposits of these banks aggregated to Rs 4,646 crore, about 15.5 per cent of national income at current prices. By the end of December 1988, they had increased to Rs 1,41,823 crore *i.e.*, 55 per cent of net national income and to Rs 1,46,891 crore by the end of March 1989. Deposits with banks in public sector were Rs 3,871 crore in June 1969. At the end of December 1988 they were Rs 1,27,069 crore, further increasing to to Rs 1,63,772 crore by February 1990. Deposits mobilised by banks are utilised for two purposes. (i) investments in Government securities and other approved securities in fulfilment of liquidity stipulation and (ii) loan and advances to borrowers.

BRANCH EXPANSION

As against 8,262 branches at the end of June 1969, total number of commercial bank branches at the end of June 1989 was 57,698. Net increase in the number of functioning offices between June 1969 and June 1989 was 49,436. Consequently, banking coverage in the country

TABLE 13.5 PROGRESS OF COMMERCIAL BANKING IN INDIA

(In June)

Item	1969	1973	1978	1980	1981	1982	1983	1984	1985	1986	1987	1988
1. Number of Commercial Banks	89	83	128	187	187	206	226	247	268	276	279	278
(i) Scheduled Commercial Banks	73	74	122	148	183	202	222	243	264	273	275	274
(ii) Regional Rural Banks	—	—	48	73	102	121	142	162	183	194	196	196
(iii) Non-scheduled Commercial Banks	16	—	6	5	4	4	4	4	4	4	4	4
2. Number of offices in India	8,262	15,362	28,016	32,419	35,707	39,177	42,079	45,332	51,385	53,265	53,840	55,410
3. Population per office (in thousand)	64	37	23	21	19	18	17	16	15	14	15	14
4 Aggregate deposits of Scheduled Commercial Banks (Rs crore)	4,646	9,165	23,133	33,377	40,549	46,128	54,039	64,620	77,075	91,828	1,07,898	1,26,323
5. Aggregate credit of Scheduled Commercial Banks (Rs crore)	3,599	6,412	15,694	22,068	26,551	30,180	36,006	43,613	50,921	57,229	64,213	72,436
6. Per capita deposits of Scheduled Commercial Banks (Rs)[1]	88	160	361	494	587	654	750	878	1,026	1,198	1,374	1,586
7 Per capita credit of Scheduled Commercial Banks (Rs)[1]	68	112	243	327	385	428	500	593	678	747	816	909
8. Deposits as percentage of national income (at current prices)[2]	15.5	21.4	29.4	35.9	36.2	38.4	38.3	41.5	43.6	47.6	44.9	45.8

[1] Based on mid-year population figures estimated by the Registrar General of India.

[2] Relates to end-March National income data relates to revised series Data for 1982 and 1983 based on provisional estimates and for 1984 on quick estimates

as a whole has been improved from one office for 65,000 persons in June 1969 to one office for 12,000 by the end of December 1988.

COVERAGE OF RURAL AREAS

In the post-nationalisation period, thrust of the branch expansion policy had been on improving availability of banking facilities in rural areas. Of the total branch network at the end of June 1989 (57,698 branches), 33,014 were at rural centres having population up to 10,000 people.

REGIONAL RURAL BANKS

Since 1975, a new category of banking institutions has been brought into existence in the form of regional rural banks to increase local involvement of banks for meeting credit requirements of weaker sections, small and marginal farmers, landless labourers, artisans and small entrepreneurs. These banks have limited area of operation and are required to lend only to weaker sections. They have access to liberal refinance facilities from National Bank for Agriculture and Rural Development and from each of the banks sponsoring its regional rural banks. At the end of December 1988, 196 regional rural banks had opened 13,920 branches covering 370 districts, mobilised deposits to the tune of Rs 2,966 crore and had outstanding advances amounting to a little over Rs 2,804 crore.

DISTRICT PLANNING AND COORDINATION

For facilitating coordinated effort on the part of all banks to increase their involvement in well planned effort to promote credit-based development of districts' economy and ensure adequate support to beneficiary-oriented development programme, Lead Bank Scheme was introduced towards the close of 1969. In implementing the Scheme, the bank designated as 'Lead Bank' for each district is expected to undertake district credit planning, involve other banks in formulation of specific programme contents, allocate shares among various credit institutions operating in the district in relation to credit deployment and bring about a coordinated effort on the part of all such institutions to deploy credit in support of identified programmes.

To ensure coordination between activities of different banks on one hand and all banks and district level agencies on the other, district consultative committees presided over by district collector meet at regular intervals and sort out problems of implementation. District level review meetings are also held where implementation of Annual Action Plans is reviewed. Forums also exist for looking into implementation of anti-poverty schemes at block level.

ADVANCES

Commercial banks have been investing part of their deposits in Government securities and bonds and debentures of Government-associated bodies, in pursuance of liquidity requirements stipulated by Reserve Bank. With growth of their deposits as also owing to successive upward revisions of Statutory Liquidity Ratio, there has been significant rise in investment of banks in Government and other approved securities, from Rs 1,727 crore in March 1970 to Rs 59,244 crore up to August 1989 (excluding RRBs). Investment of funds by scheduled commercial banks in such securities now constitutes an important feature of the scheme of resources mobilisation for financing plan programmes.

CREDIT DEPLOYMENT

Advances in whatever form constitute the end objective of banking. From a low level of Rs 3,599 crore in June 1969, advances of scheduled commercial banks increased to Rs 87,746 crore by December 1988 and to Rs 96,009 crore by March 1989 Advances of banks in public sector increased from Rs 3,017 crore to Rs 83,083 crore by March 1989

SECTORAL DEPLOYMENT

More significant than the increase in bank credit are the changes in sectoral deployment. In the pre-nationalisation days, large and medium industry and wholesale trade accounted for over 78 per cent of bank credit By March 1989 share of these sectors (excluding credit for public food procurement) had declined to about 37.5 per cent. Correspondingly, share of priority sectors, food procurement agencies, etc., had shown significant enlargement.

ADVANCES IN PRIORITY SECTORS

Extension of credit to small borrowers in the hitherto neglected sectors of economy has been one of the major tasks assigned to public sector banks in the post-nationalisation period. To achieve this objective, banks have drawn up schemes to extend credit to small borrowers in sectors like agriculture, small scale industry, road and water trasport, retail trade and small business, which traditionally had very little share in credit extended by banks. Taking into account the need to provide resource requirements to weaker sections, for specific needs, consumption credit (with certain limits and for specific need) has been incorporated in priority sectors. Similarly, small housing loans (not exceeding Rs 5,000) to scheduled castes/scheduled tribes and other weaker sections are also classified as priority sector advances.

Number of borrowal accounts with public sector banks for these categories of borrowers increased from 2.60 lakh to 341 lakh between June 1969 and September 1989. Amount outstanding during the same period increased from Rs 441 crore to Rs 36,238 crore. Public sector banks accounted for 44.3 per cent of total bank credit by March 1989.

Table 13.6 shows achievements of public sector banks in stepping up flow of credit in various priority sectors.

CREDIT TO WEAKER SECTIONS

To increase credit flow to smaller and poorer borrowers, a broader concept of weaker sections comprising small and marginal farmers, landless labourers, tenant farmers and share-croppers, artisans, village and cottage industries, beneficiaries of Integrated Rural Development Programme, scheduled castes and scheduled tribes, differential rate of interest (DRI) beneficiaries has been evolved. This section was slated to receive not less than 10 per cent of net bank credit by March 1985. By September 1989, weaker sections had received Rs 8,824 crore and accounted for 10.9 per cent of aggregate advances of public sector banks.

DIRECT FINANCE TO AGRICULTURE

Public sector banks were initially given a target of extending 15 per cent of total advances as direct finance to agriculture to be achieved by March 1985. This target was subsequently raised to 16 per cent to be achieved by March 1987 and more recently it has been raised to 17 per cent to be achieved by March 1989. It has again been raised to 18 per cent to be achieved by March 1990 As against this, public sector banks had already achieved 16.8 per cent by March 1988 but marginally dropped to 16.7 per cent by September 1989 due to unfavourable climatic condition.

ADVANCES TO SC/ST BORROWERS

People belonging to scheduled castes and scheduled tribes have been recognised as the most vulnerable sections. Banks have been asked to make special efforts to assist them with adequate credit to enable them to undertake self-employment ventures to acquire income-generating capital assets so as to improve their standard of living At the end of September 1989, public sector banks had assisted 86.77 lakh scheduled caste/scheduled tribe borrowers involving an amount of Rs 2,704 crore

INTEGRATED RURAL DEVELOPMENT PROGRAMME

The programme envisages capital subsidy and credit assistance to identified poor families for acquiring income-generating assets to come up above poverty line. The programme envisaged a capital subsidy flow of Rs 1,500 crore during Sixth Plan period with a matching credit mobilisation of Rs 3,000 crore to benefit 1.50 crore families. As against this banking system had mobilised term credit of Rs 3,102 crore assisting 1.66 crore beneficiary families. Provisional target for Seventh Plan had been set to assist two crore beneficiary families. During first three years of Seventh Plan *i.e.*, 1985-88 banking system had assisted 1.10 crore beneficiary families involving term

TABLE 13.6 ADVANCES OF PUBLIC SECTOR BANKS

Sector	No. of Borrowal Accounts (lakh)						
	June 1969	Dec 1984	Dec 1985	Dec 1986	Dec 1987	March 1988	March 1989
1. Agriculture							
(i) Direct Finance	2.67	134.79	150.27	165.58	180.34	180.93	195.64
(ii) Indirect Finance	—	9.91	9.73	9.56	7.73	7.23	7.90
2. Small Scale Industry	0.57	14.13	15.95	18.11	21.71	22.61	26.59
3 Road and Water Transport Operators	0.03	5.48	5.92	6.16			
4. Professional and Self-Employed Persons	—	14.49	16.13	18.26			
5. Education	0.01	0.58	0.66	0.68	88.10	93.15	104.26
6 Housing	—	1.62	1.64	1.95			
7. Consumption	—	2.02	1.62	1.49			
8. Other Priority Sectors	—	33.09	40.02	47.95			
Total	3.28	216.11	241.94	269.74	297.88	303.92	334.39

TABLE 13.6 (Continued)

Sector	Amount Outstanding (Rs Crore)						
	June 1969	Dec 1984	Dec 1985	Dec 1986	Dec 1987	March 1988	March 1989
1. Agriculture							
(i) Direct Finance	188 40	5,970 36	7,415 13	8,929 97	10,287 23	10,437 95	12,832.51
(ii) Indirect Finance	—	1,373 70	1,378 32	1,377 50	1,425 27	1,418 99	1,461.46
2. Small Scale Industry	285.90	6,233 61	7,470 70	8,684 07	10,166 32	10,547 59	13,129 86
3. Road and Water Transport Operators	8 20	1,774 08	1,882 70	1,958.62			
4. Professional and Self-Employed Persons	0 30	510 00	653 29	883 68			
5. Education	0.50	25 28	32 68	35.85	5,931 22	6,063.26	7,199 17
6. Housing	—	53 14	63 80	106 06			
7. Consumption	—	18 52	21 07	18 91			
8 Other Priority Sectors	—	1,419 25	1,730.11	2,140.62			
Total	483 30	17,377 94	20,647 80	24,085.28	27,810 04	28,467 79	34,623.00

Note:

1. Data for June 1969 is in respect of scheduled commercial banks.
2. Other priority sectors include advances given to. (i) retail trade, (ii) small business, (iii) SSC/Organisation for on-ending to other priority sectors and SSO's for SC/ST.
3. Data for December 1987 and March 1988 is provisional
4. Source· Priority Sector returns received from commercial banks.

credit of Rs 2,920.38 crore. Banking system assisted 37.72 lakh beneficiary families during 1988-89 with Rs 1,231.62 crore. The corresponding figures for 1989-90 (April-September 1989) are 10.99 lakh beneficiary families and Rs 390.53 crore of term credit.

SELF-EMPLOYMENT SCHEME FOR EDUCATED UNEMPLOYED YOUTH

This scheme was introduced in 1983-84 to create self-employment opportunities and to motivate educated young men and women to take up self-employment ventures. The scheme was extended to all areas of the country except cities with more than 10 lakh population as per 1981 census. Under the scheme, composite loans not exceeding Rs 35,000 for industrial ventures, Rs 25,000 for service ventures and Rs 15,000 for business ventures at an interest rate of 10 per cent per annum in backward areas and 12 per cent per annum in other areas, are granted. Banks are not to ask for any margin money or seek collateral security of third party guarantee for loan.

Annual target of banks was to assist 2.5 lakh beneficiaries from 1983-84 to 1986-87. For 1987-88 target was 1.25 lakh beneficiaries. It was again raised to 2.5 lakh beneficiaries during 1988-89. Against this banks had assisted 2.42 lakh beneficiaries in 1983-84 involving Rs 401 54 crore. Similarly in 1984-85 and 1985-86, 2.29 lakh and 2.21 lakh beneficiaries were assisted with Rs 429.53 crore and Rs 429.99 crore respectively In 1986-87, 2.17 lakh beneficiaries were assisted involving an amount of Rs 469.91 crore. In 1987-88, 1.20 lakh beneficiaries were assisted involving Rs 259.76 crore. As per provisional data during 1988-89, 1 91 lakh beneficiaries were assisted to the extent of Rs 403 45 crore.

SELF-EMPLOYMENT PROGRAMME FOR URBAN POOR

Self-Employment Programme for Urban Poor (SEPUP) was launched from 1 September 1986. It covers all cities/towns with a population exceeding 10,000 as per 1981 census and areas which are not covered under Integrated Rural Development Programme (IRDP). One beneficiary for every 300 population (1981 census) is to be assisted at each urban centre. Persons whose total family income does not exceed Rs 600 per month are eligible for assistance to undertake any economically viable activity A borrower is eligible for a maximum loan of Rs 5,000 at an interest rate of 10 per cent per annum. A capital subsidy at the rate of 25 per cent of the amount of assistance is provided by Central government. No collateral security or third party guarantee or margin money is needed. Repayment of loan is in 33 equal monthly instalments after a grace period of three months.

During 1986-87, 1987-88 and 1988-89 number of beneficiaries under the Programme was 3.41 lakh., 3.82 lakh and 3.57 lakh respectively. Amount sanctioned during these three years was Rs 116.16 crore, Rs 136.55 crore and Rs 137.07 crore respectively.

DIFFERENTIAL RATE OF INTEREST SCHEME

Lending rate structure of scheduled commercial banks is weighed in favour of priority sector advances and within that category in favour of smaller/poorer borrowers.

Public sector banks are operating a scheme of differential rate interest (DRI) since 1972. The scheme covers poor borrowers having an annual family income of not more than Rs 6,400 in rural areas and Rs 7,200 in other areas and not owning more than 2.5 acres of unirrigated or one acre of irrigated land. They are given credit support at four per cent per annum rate of interest for sums up to Rs 6,500 as term loan and working capital loan for productive ventures Public sector banks had an outstanding DRI credit of Rs 684.94 crore against 47.01 lakh borrowal accounts at the end of June 1989.

Housing loans up to Rs 5,000 to scheduled caste/tribe borrowers are also extended at four per cent rate of interest per annum. Other loans such as those to small and marginal farmers and landless labourers for activities allied to agriculture, artisans, village and cottage industries, petty traders/ vendors, also carry concessional rate of interest.

COORDINATION AMONG BANKS AND ADMINISTRATIVE AGENCIES

With the increasing role being assigned to banks to lend active credit support for economic development of backward classes and weaker sections, coordination among banks and between banks and developmental agencies has become important. To achieve this, different forums have been created at district, state and regional levels. At district level, there are consultative committees with collectors as their chairmen and lead bank's officers as their convenors At state level, there are two formus, *viz.*, state level bankers' committees and state level coordination committees. The former comprises bank officers at middle-management level, while the latter also includes heads of departments of state governments. At apex level, there are six regional consultative committees having representation at minister level.

INDIAN BANKS ABROAD

One hundred and sixteen branches (including offshore branches and mobile agencies) of nine Indian commercial banks were operating in foreign countries as on 30 November 1989. These branches are spread over a number of countries and located in major centres including international financial centres like London, Singapore, Baharain, Tokyo and Paris.

Largest concentration is in the United Kingdom (33) followed by Fiji Islands (9), Hong Kong (8), Kenya (8), USA (7) and United Arab Emirates (6) . These branches specialise in various areas of international banking including financing of foreign trade. They cater to needs of Indian exporters and importers and to that extent they form an integral part of domestic banking system.

Besides these branches, Indian commercial banks are having representative offices in USA, Indonesia, Iran, Egypt, USSR, Italy, Zimbabwe and Australia. Indian commercial banks are also having wholly-owned subsidiaries/joint ventures in USA, Canada, Kenya, Hong Kong, Zambia, Nigeria, Uganda, Malaysia and Bhutan.

DEVELOPMENT FINANCIAL INSTITUTIONS

INDUSTRIAL DEVELOPMENT BANK OF INDIA

Industrial Development Bank of India (IDBI) established under the Industrial Development Bank of India Act, 1964, is the principal financial institution for providing credit and other facilities for development of industry, coordinating working of institutions engaged in financing, promoting or developing industries and assisting development of such institutions. IDBI has been providing direct financial assistance to large and medium large industrial concerns and also helping smalll and medium industrial concerns through banks and state level financial institutions.

Paid-up capital of IDBI wholly subscribed by Government as at the end of March 1989 stood at Rs 540 crore, Cumulatively by June 1988, IDBI had sanctioned and disbursed assistance aggregating Rs 35,525.93 crore and Rs 25,812.49 crore respectively. Total outstanding as on 31 March, net of repayment by borrowers was Rs 15,644 crore. Net profit of IDBI from July 1988 to March 1989 was Rs 173 crore.

INDUSTRIAL FINANCE CORPORATION OF INDIA

Industrial Finance Corporation of India (IFCI) is a national level development bank set up in 1948 under the Industrial Finance Corporation Act, 1948 with the objective of providing medium and long term finance to eligible industrial units in India. As part of its broad development role, IFCI has undertaken a wide range of promotional activities, some of its own and others jointly with other all-India financial institutions. Paid-up capital of IFCI at the end of March 1989 stood at Rs. 82.50 crore. Cumulatively overall sanctions accorded by IFCI under its various schemes by March 1989 amounted to Rs. 6,546.78 crore to 3,159 projects. Overall disbursements by March 1989 were worth Rs. 4,352.08 crore of which cash disbursements, *i.e.*, disbursements excluding guarantees issued, were worth Rs. 4,275.17 crore. Total outstandings as on 31 March 1989, net of repayment by borrowers amounted to Rs. 3,577.78 crore.

INDUSTRIAL CREDIT AND INVESTMENT CORPORATION OF INDIA

Industrial Credit and Investment Corporation of India (ICICI) was established in 1955 as a public limited company to encourage and assist industrial units in the county. It provides term loans in Indian and foreign currencies, underwrites issues of shares and debentures, makes direct subscriptions to these issues and guarantees payment for credit made by others. Paid-up capital of ICICI by March 1989 was Rs 80.05 crore. Cumulative project finance sanctions by March 1989 were Rs 7,923.90 crore comprising Rs 3,485.96 crore in foreign currencies and Rs 4,437,94 crore in Indian currency. This assistance was spread over 2,791 companies for 5,884 projects. Disbursements amounted to Rs 5,693.29 crore comprising Rs 2,791.39 crore in foreign currencies and Rs 2,901.90 crore in Indian currency. Outstanding portfolio, net of repayment by borrowers amounted to Rs 3,628.09 crore.

INDUSTRIAL RECONSTRUCTION BANK OF INDIA

Industrial Reconstruction Bank of India (IRBI) was set up as a statutory corporation on 20 March 1985 by reconstituting the erstwhile Industrial Reconstruction Corporation of India. IRBI has been established as a principal institution to provide credit and investment needed for rehabilitation of sick industrial undertakings and promotion of industries in general. Prevention and containment of industrial sickness are the main objectives of IRBI. Authorised capital of IRBI is Rs. 200 crore and paid-up capital as on 31 March 1989 was Rs 112.50 crore. By June 1989 cumulative financial assistance sanctioned and disbursed stood at Rs 915.55 crore and Rs 624.11 crore respectively.

EXPORT-IMPORT BANK OF INDIA

Export-Import Bank of India (Exim Bank) is the principal financial institution in India for coordinating working of institutions engaged in financing export and import trade, Exim Bank was established on 1 January 1982 for financing, facilitating and promoting foreign trade of India. Over the seven years ending 31 March 1989 export contracts valued at Rs 3,800 crore had been financed by Exim Bank Aggregate loans and advances as on the date were Rs 3,154.50 crore. Paid-up capital of Exim Bank was Rs 220.50 crore as on 31 March 1989 with an authorised capital of Rs 500 crore. Net profit on accumulated basis reached Rs 10.07 crore. Its reserves aggregated Rs 7.96 crore.

EXPORT CREDIT

According to Reserve Bank of India, during 1987-88 (April-March) outstanding export credit of 50 scheduled commercial banks (accounting for about 95 per cent of bank credit) showed a significant increase from Rs 763 crore to Rs 3,909 crore as compared with that of Rs 737 crore during the preceding year. Export credit constituted 5.7 per cent of non-food gross bank credit as at the end of March 1988 as compared with 5.5 per cent a year ago.

During the same period out of the marketing development assistance of the Government, Reserve Bank disbursed interest subsidy worth Rs 44.87 crore to commercial banks at the rate of three per cent per annum on export credit extended by them to exporters. Corresponding figure for the period April to June 1988 was Rs 29.98 crore.

HOUSING FINANCE

Amount earmarked for housing finance to be extended by scheduled commercial banks annually was raised from Rs 150 crore to Rs 225 crore for the year ending December 1988 and further to Rs 300 crore for the year ending December 1989. Of the total allocation 60 per cent of the amount would be channelled by way of lending either directly to individuals or groups or indirectly by way of term loans to housing boards, HUDCO, etc., and the balance 40 per cent by way of subscriptions to the guaranteed bonds/debentures of these institutions. Banks have been advised to ensure that atleast 50 per cent of the amount earmarked for lending should be for scheduled castes/scheduled tribes, economically weaker sections and lower income groups.

Commercial banks had provided housing finance worth Rs 186.21 crore and Rs 194 43 crore for 1986 and 1987 against the target of Rs. 160 crore for each of these years As against the target of Rs 225 crore for 1988, banks had provided Rs 237 crore towards housing finance. Further Reserve Bank of India has taken a series of steps for liberalising housing loans to be provided by commercial banks in order to enable a larger number of beneficiaries acquiring housing loans from them.

NATIONAL HOUSING BANK

Government has adopted a comprehensive national housing policy which, *inter alia*, envisages development of a viable and accessible institutional framework for provision of housing finance. In consonance with this policy, Reserve Bank had set up a study group on housing finance institutions in September 1987

National Housing Bank Bill was passed by Parliament during 1987 winter session. It received the assent of President on 23 December 1987, thus becoming an Act of Parliament. National Housing Bank (NHB) was set up as an apex institution for housing finance on 9 July 1988 and its entire initial share capital of Rs 100 crore subscribed by Reserve Bank. The share capital has since been increased to Rs 150 crore to be subscribed by RBI.

NHB made a modest beginning by disbursing Rs 55 lakh to scheduled commercial banks up to 30 September 1989. During the same period Rs 2.35 crore had been disbursed to housing finance companies by way of refinance. NHB has launched Home Loan Account (HLA) Scheme through branches of scheduled commercial banks. This scheme gathered 1.18 lakh accounts amounting to more than Rs 6.92 crore up to 30 November 1989.

NABARD

National Bank for Agriculture and Rural Development (NABARD) came into existence on 12 July 1982. It took over functions of the erstwhile Agricultural Credit Department, Rural Planning and Credit Cell of Reserve Bank of India and Agricultural Refinance and Development Corporation. Its subscribed and paid-up capital is Rs 100 crore, contributed by Central government and RBI in equal proportions. NABARD was established for providing credit for promotion of agriculture, small scale industries, cottage and village industries, handicrafts and other allied economic activities in rural areas with a view to promoting integrated rural development and securing prosperity of rural areas and for matters connected therewith or incidental thereto.

NABARD is an apex institution accredited with all matters concerning policy, planning and operations in the field of credit for agriculture and other economic activities in rural areas. It will: (i) serve as an apex refinancing agency for institutions providing investment and production credit for promoting various developmental activities in rural areas; (ii) take measures towards institution building for improving absorptive capacity of credit delivery system, including monitoring, formulation of rehabilitation schemes, restructuring of credit institutions, training of personnel, etc.; (iii) coordinate rural financing activities of all institutions engaged in developmental work at field level and maintain liaison with Central government/ state governments, RBI and other national institutions concerned with policy formulation, and (iv) undertake monitoring and evaluation of projects refinanced by it.

NABARD's refinance is available to state land development banks, state cooperative banks, scheduled commercial banks and regional rural banks. While the ultimate beneficiaries of investment credit can be individuals, partnership concerns, companies and state-owned corporations or cooperative societies, production credit it generally given to individuals. Term credit disbursement of NABARD by way of refinance under schematic lendings was Rs 1,270 crore during 1988-89 (July-March). Refinance commitments under new schemes approved during the same period were Rs 1,381 crore against Rs 1,404 crore during the previous year. Refinance provided for implementation of Integrated Rural Development Programme reached the level of Rs 403 crore during the above period.

INSURANCE

Insurance industry in India has taken remarkable strides towards its objectives. Growth of this industry was particularly marked after First World War. When in 1947 India attained independence, there were well over 200 Indian and non-Indian insurance and provident societies in the field.

Independence heralded the beginning of a new era of growth of insurance business but the main watersheds were nationalisation of life insurance business on 1 September 1956 and nationalisation of general insurance business in January 1973. Major objective of nationalisation was achievement of wider spread of business more particularly in rural areas, so that benefits of insurance should become available to an increasing number of persons and all sectors of economy. For this purpose, great emphasis has been laid on strengthening the field force to cater to needs of different sections. A progressive policy for establishment of more and more branch offices in rural and mofussil areas has also been adopted.

LIFE INSURANCE CORPORATION

Life Insurance Corporation of India (LIC) was established on 1 September 1956 to spread message of life insurance in the country and mobilise people's savings for nation building activities.

Prior to nationalisation of insurance companies, 245 private insurers used to operate from 97 centres catering mostly to urban population and their total business in force stood at Rs 1,220 crore by the end of 1955. LIC with its central office in Bombay and five zonal offices at Bombay, Calcutta, Delhi, Madras and Kanpur operates through 65 divisional offices in important cities and 1,450 branch offices. The Corporation also transacts business in foreign countries and has offices in Fiji. Mauritius and the United Kingdom. LIC is associated with two joint ventures abroad in the field of insurance, namely, Kenindia Assurance Co Ltd., Nairobi United Oriental Assurance Ltd., Kuala Lumpur and International Agencies Co. Ltd., Baharain.

LIC's new business by February 1990 was Rs 16,436 06 crore registering 31.2 per cent increase over the corresponding period last year. However in 1988-89 the Corporation had achieved the highest ever growth rate of 38.6 per cent in respect of new business. Other growth indicators regarding new policies issued during the year (27.5 per cent), new policies sold in rural areas (31.8 per cent) and premimum income (28.5 per cent), were equally impressive. With 3.17 lakh agents LIC has the largest field organisation in the country.

LIC's Group Insurance portfolio showed progress in individual business with a new business of Rs 16,251 crore under 8,081 schemes covering 26.81 lakh people displaying growth rates of 18.2 per cent, 41.9 per cent and 6.5 per cent respectively. Notable group schemes for weaker sections are for sweepers, weavers rickshaw-pullers, construction workers, farmers, forest labourers, taxi-drivers, blind workers, fishermen, porters, etc. The schemes introduced recently by LIC include *Jeevan Dhara* and *Jeevan Akshay* for pensioners and *Bima Niwas Yojana* for housing finance.

GENERAL INSURANCE CORPORATION

With nationalisation of general insurance from 1 January 1973, General Insurance Corporation (GIC) was set up as a holding company charged with responsibility for aiding, assisting and advising four subsidiary companies *viz.*, (1) National Insurance Co. Ltd., Calcutta (2) New India Assurance Co Ltd., Bombay (3) Oriental Insurance Co. Ltd., New Delhi and (4) United India Insurance Co. Ltd., Madras.

GIC does not transact any direct insurance business except aviation insurance mainly pertaining to Indian Airlines, Air India, International Airport Authority of India and Hindustan Aeronautics and crop insurance.

Four subsidiary companies of GIC operate on an all-India basis in competition with one another and transact all classes of insurance business through regional, divisional and branch offices. As compared to 799 offices in 1973, the network consisted of 3,730 offices by March 1989.

Services of general insurance industry are now available all over the country, practically all districts have either an office or a development officer. Gross domestic premium of the industry amounted to Rs 2,248 crore during the 15-month period ending March 1989 as compared to Rs 1,565 crore in 1987, representing a growth rate of 14.9 per cent (annualised growth) over the premium income of 1987. General insurance industry operates directly through branches and agencies in 17 countries and through subsidiaries and associate companies in 14 countries spread over South East Asia, West Asia, Africa, France, the UK, North America and the Caribbeans.

Besides striving to meet sophisticated requirments of organised trade and industry by covering complex risks such as satellites, oil rigs, petrochemicals, thermal power projects, etc., the industry has devised non-traditional lines of business meant for economically weaker sections and rural areas. One of the major thrust areas for benefit of rural population is insurance of cattle and livestock like camels, sheep, goats, pigs, rabbits, poultry, ducks, quails, etc. Besides other insurance covers available for benefit of weaker sections are–composite package insurance for beneficiaries of Integrated Rural Development Programme, National Rural Employment Programme etc., in respect of dwelling premises and other belongings; group personal accident cover for fishermen, toddy tappers, factory workers, etc; package policy for handloom workers; cover for artisants, village, cottage and small scale industries including bio-gas plants; personal accident cover, namely, *Janata* and *Gramin;* agricultural pumpsets, failure of wells and pedal cycles, rickshaws, etc.

Personal accident insurance social security scheme designed to provide relief to poor families in the event of accidental death of their earning members, introduced in 1985, was in operation in 214 districts of the country. From 15 August 1988 the scheme has been extended to all the remaining districts and now the whole country stands covered under it. From 1 February 1988, age limit under the scheme has been increased from 55 years to 60 and limit of family income has been enhanced from Rs 5,000 to Rs 7,200 per annum. Premium is funded by Central government. A scheme to provide fire insurance cover for huts and belongings of landless labourers, small farmers, artisans and other poor people in rural areas, had been introduced from 1 May 1988 for a period of two years in the first instance. The scheme provides compensation up to Rs 1,000 for a hut and Rs 500 for belongings therein. Entire premium cost is being borne by Central government.

A comperhensive crop insurance scheme has been introduced since 1985 linking crop loans disbursed by cooperative credit institutions, commercial and rural banks with an in-built insurance cover. The scheme is operated in states which have accepted the scheme for all crop loans given in notified areas for cultivation of rice, wheat, millets, oilseeds and pulses which constitute major crops in the country. Area-approach for determining threshold expected yield–based on last few years' statistics and actual yield determined on basis of crop-cutting experiments, has been adopted. Premium has been standardised at the flat rate of two per cent of the sum insured for rice, wheat and millets and one per cent for oilseeds and pulses irrespective of high, medium and low-risk areas. For small and marginal farmers, premium is subsidised by Government to the extent of 50 per cent Risk is shared to the extent of $33^1/_3$ per cent by participating state governments and $66^2/_3$ per cent by Central government The scheme is administered by GIC. The Corporation has opened offices in various state capitals and union territories to maintain close liaison and provide service to state cooperative banks, commercial banks and rural banks for smooth implementation of the scheme.

Several covers for providing insurance protection to urban population have also been developed such as householders'/shopkeepers' comprehensive policy for various risks, simplified personal accident policy, professional indemnity insurance for professionals like doctors, chartered accountants, solicitors, architects, etc., and cancer medical insurance. A medical insurance scheme for Indians going abroad for official and business purposes has been introduced in cooperation with Mercury Insurance Services Ltd., UK and Travel Insurance Management, London. The scheme covers holiday visits for a maximum period of 180 days to all countries excluding USA and Canada and for a period of 60 days to all countries including USA and Canada A modified medical insurance scheme for benefit of general public under the brand name MEDICLAIM has been introduced from 3 November 1986 Under this scheme, premium up to Rs 8,000 is eligible for tax deduction under Section 80 (D) of the Income-Tax (Amendment) Act, 1986

Following Bhopal gas tragedy, there has been an increased awareness of public liability insurance and the industry has devised public liability policy for covering industrial accidents and pollution liability to suit the requirement of insuring institutions. Besides, the industry has also devised product liability cover for domestic products as well as export products. A cover for loss or damage caused by acts of terrorism in conjunction with cover for riots, strikes and malicious damage, has been introduced from 1 January 1987. A major portion of investible funds of the industry is channelised into socially-oriented sectors of economy

Solatium Fund scheme which provides compensation to victims of hit-and-run road accidents where the vehicle can not be identified, was, till now, being administered by Ministry of Surface Transport. Effective from 1

July 1989 GIC is administering the scheme through its four subsidiary companies. Benefits under the scheme (as per new Motor Vehicle Act) have also been enhanced from Rs 1,000 to Rs 2,000 in case of grievous hurt and from Rs 5,000 to Rs 8,500 in case of loss of life.

The insurance industry is supporting Loss Prevention Association of India Ltd., which is active in the promotion of loss prevention in various fields in the country.

Insurance companies have their own full-fledged training colleges with residential facilities, modern audio-visual aids and well-equipped library. GIC in collaboration with Central Board of Secondary Education, has introduced General Insurance subjects in vocational stream at 10+2 level in some selected schools in the country from 1988-89 session. In the two-year course at the plus two level various general insurance subjects will be taught. Successful students with 50 per cent marks will be appointed as apprentice assistants and will be paid stipend of Rs 1,000 per month for one year. Thereafter, subject to satisfactory performance, they will be appointed as assistants in regular grade. After three years of service as assistants, they can appear for departmental test for promotion to officers' cadre.

A special programme of safety education for school children has been launched by general insurance industry. The programme envisages imparting of safety education to children through audio-visual programmes on fire safety, road safety, electrical safety, first-aid, home safety and natural hazards. The programme would inculcate safety habits among children and help develop a generation of safety-conscious and responsible children. The programme envisages imparting of safety education to nearly 3 to 5 lakh school children of seventh and higher classes in about 3,000 schools located all over the country. Each office of four subsidiaries of GIC will adopt one school in its territory and assume responsibility for implementing the programme in that school. Wherever possible, assistance will be sought from agencies such as fire brigade, civil defence, traffic police, etc., so as to supplement the efforts. After the programme, safety competitions/constests will be organised at school level and at various other centres with suitable prizes.

CREDIT RATING INFORMATION SERVICES

Credit Rating Information Services of India Limited (CRISIL) which was set up jointly by ICICI, UTI, LIC, GIC, Asian Development Bank and some other institutions as the first credit rating agency in the country, started its operations in January 1988. CRISIL's principal objective is to rate debt obligations of Indian companies, thereby providing a guide to investors as to the risk of timely payment of interest and principal on a particular debt instrument. It rates debentures, fixed deposit programmes, short term instruments and preference shares on receipt of request to the effect from the company. However, the ratings of CRISIL relate to particular debt instruments and are not a rating for the company as a whole.

INVESTMENT

FOREIGN INVESTMENT POLICY

Government welcomes foreign investment in desirable areas to supplement capital resources and knowhow for rapid industrial development. Its policy towards foreign investment is selective and aims at stimulating industrial growth through induction of advanced technology and promoting exports. Foreign capital generally is not permitted in banking, commerce, finance, plantation, trading and consumer industries although in special financial services, selective entry is considered. Normal limit for foreign equity participation is 40 per cent which is relaxable on merits in individual cases, main considerations being technology and exports. Within broad framework of the selective policy, a process of consultaion and dialogue on a continuing basis has been initiated with major capital and knowhow exporting countreis to identify and smoothen out bottlenecks in larger inflow of direct foreign investment. With given policy framework, foreign equity is welcome in joint ventures as a means to establishing long term relationships, which would result in greater inflow and better absorption of technology and as a means to meeting some of foreign exchange requirements of joint ventures. Certain liberalised facilities for investment in India have also been made available to investors from oil exporting developing countries and non-resident Indians.

Recently, Government has set up two inter-ministerial committees, one each for Japanese and FRG investments in India, in Department of Economic Affairs. Other members are from Ministry of Industry and Ministry of External Affairs. These committees also invite representatives of embassies, trade and industries of Japan and FRG, for its meeting, to deliberate on procedural or policy-related bottlenecks and how they can be removed to improve investment climate.

NRI INVESTMENTS—NEW INITIATIVES

NRI investment facilities were announced in 1982. Since then they are under constant review. During 1987-88, following initiatives were taken: (i) commercial banks authorised to deal in foreign exchange were also authorised to withhold tax on capital gains arising from sales proceeds on a foreign exchange asset and remit the balance amount to NRI abroad or credit to his non-resident external accounts maintained with a bank in India without obtaining a 'no objection certificate' from income tax authorities; (ii) RBI has issued notification granting general permission to companies having more than 40 per cent non-resident interest to acquire immovable property in India which is necessary for carrying on business in India by such companies. All-India and state-level term lending institutions have been given permission by RBI to grant loans to companies floated by NRIs without seeking special permission form RBI; (iii) to minimise problems relating to delays in allotment/refund of money and consequent exchange losses to NRI subscribers to public issues of indian companies, Government has decided that such companies henceforth will open a collection account at overseas location; (iv) non-resident Indians have also been permitted to make investments in 'mutual funds' set up by public sector bodies or public financial institutions on a non-repatriation basis; (v) Government has also decided to introduce a new scheme of foreign currency denominated bonds/deposit certificates for non-resident Indians on a non-repatriable basis. Maturity period to these bonds/deposit certificates will be seven years and these will carry an interest rate higher than that applicable to repatriable foreign currency non-resident deposits. These bonds/deposits will be free from income tax, wealth tax and gift tax, and (vi) it has been decided to issue long term visas with multiple entry to non-resident Indians who invest in Indian industries.

UNIT TRUST OF INDIA

Unit Trust of India (UTI) was established in 1964 as a public sector investment institution for mobilising savings and channeling them into productive corporate investment so as to provide for growth and diversification of economy. To achieve this UTI sells units in the denomination of Rs 10 and Rs 100 to investing public to provide an opportunity, particularly to those belonging to small and medium income groups, indiredtly to participate in ownership of shares and debentures of joint stock companies. It has formulated various schemes from time to time to cater to specific investment needs of diffeent types of investors.

UTI has so far introduced 27 schemes for mobilising savings. Main scheme of UTI is Unit Scheme 1964. UTI in association with Merrill Lynch floated India Fund in UK (1986) and India Growth Fund in USA (1988) for providing an opportunity for non-resident Indians and persons of Indian origin residing abroad and other persons residing outside India to invest in securities market of India. UTI also set up a Mutual Fund in September 1986 under which *Master Shares* have been offered for public subscription. Mutual Fund has been set up in order to provide a channel for small investors for investing in shares quoted in stock exchanges. UTI has recently introduced a new scheme 'housing development fund/units scheme'.

STOCK EXCHANCE

Stock exchanges play a crucial role in mobilisation of resources for corporate sector. They provide an organised market for transactions in securities.

There are 19 stock exchanges in the country recognised under the Securities Contracts (Regulation) Act, 1956. These are located at Bombay, Calcutta, Madras, Delhi, Ahmadabad, Ludhiana, Kanpur, Jaipur, Indore, Pune, Hyderabad, Bangalore, Cochin, Guwahati, Mangalore, Patna, Bhubaneshwar, Rajkot and Vadodara. While stock exchanges are being administered by their governing boards and executive chiefs, policies relating to their regulation and control are laid down by Ministry of Finance. Government also constituted Securities and Exchange Board of India (SEBI) in April 1988 for orderly development and regulation of securities industry and stock exchanges.

MINTS AND PRESSES

Indian Security Press, Nasik Road consists of two units–stamp press and Central stamp depot. Stamp press prints postal stationery, postal and non-postal and impressed stamps, judicial and non-judicial stamps, cheques, bonds and other security documents, besides a number of miscellaneous items of security required by Central and state governments and quasi-government organisations. Central stamp depot distributes finished products made by stamp press to various indentors. Currency Note Press, Nasik Road prints and supplies currency notes of one rupee and bank notes of rupee two, five and ten denominations. Security Paper Mills, Hoshangabad manufactures paper for making currency notes and other security paper. Bank Note Press, Dewas consists of two production units, *viz.*, main press for printing bank notes of the denominations of Rs 20, 50 and 100 and ink factory for manufacture of security inks. Security Printing Press, Hyderabed prints postal stationery and other security forms.

Mints at Bombay, Calcutta, Hyderabad and NOIDA mint coins to meet the country's requirements. Bombay Mint being the only gold refinery in the country, undertakes refining of gold for licensed gold dealers and production of medals for defence services institutions, etc. The Mint also manufactures working standards of weights and measures for various states. Calcutta and Hyderabad mints besides minting coins, manufacture medals for various government departments. While NOIDA unit which has been recently commissioned is built on modern lines the other units are also being modernised with a view to increasing production.

EXPENDITURE

CONTROLLER GENERAL OF ACCOUNTS

Organisation of Controller General of Accounts (CGA) was set up as a part of Ministry of Finance, Department of Expenditure in October 1976 to administer matters pertaining to departmentalisation of accounts of the Union. These include prescribing the form of accounts relating to the Union and state governments, laying down of accounting procedures, framing and revising rules and manuals relating thereto; overseeing maintenance of adequate standards of accounting by Central (civil) accounts officers; consolidation of monthly and annual accounts of Government (including preparation of summary civil appropriation accounts), and administration of rules under Article 283 of the Constitution relating to the custody, etc., of Consolidated Fund of India, Contingency Fund of India and money credited to Public Account.

CGA prepares condensed form of appropriation accounts (civil) and finance accounts of Government. These after audit by Comptroller and Auditor General are placed on the table of both Houses of Parliament along with the report from the latter.

After departmentalisation of accounts, pay and accounts offices attached to ministries/authorities compile their respective accounts manually and send them in pre-printed booklets to the office of the CGA where they are consolidated through a computer of the National Informatics Centre (NIC). Consolidated Central civil accounts, consolidated Central government accounts (incorporating accounts of Railways, Posts, Telecommunications and Defence) as also certain reports required by Ministry of Finance, CSO, RBI etc., are prepared by CGA. Controller General of Accounts office is also responsible for administering scheme for payment of pension to Central government civil pensioners by public sector banks and prescribing procedure for payment to civil pensioners.

A Central Pension Accounting Office (CPAO) has been set up to further streamline payment of pensions to civil pensioners and freedom fighters. A Central data bank is also being developed on computer.

PLAN FINANCE DIVISION

Plan Finance Division-I is concerned with all aspects of state finances. This Division is actively associated with assessment of financial resources in connection with formulation of Five Year and Annual Plans of states. It is also closely associated with assessment of requirements of Central assistance for natural calamity relief. It releases Central assistance to the states for state Plans as well as for natural calamity relief. Amount of relief has now been raised from 50 per cent to 75 per cent as non-Plan grant. It monitors ways and means and resources position of states on a continuous basis and takes timely action to advise states whenever they get into ways and means problems.

For 1989-90, budget estimates of Central assistance to states for annual plan amounted to Rs 8,564.43 crore including Rs 273 crore for special assistance for development of hill areas. A provision for advance plan assistance of Rs 400 crore had been made for states affected by drought. A provision of Rs 200 crore was also made for non-plan grants to states affected by natural calamities other than drought *i.e.*, floods, cyclones, hailstroms, earthquakes, etc.

In addition Central share of margin money as recommended by Ninth Finance Commission was also released during 1989-90 wherever required.

COST ACCOUNTS BRANCH

Cost Accounts Branch (CAB) is a pricing organisation of Central government attached to Department of Expenditure. This Organisation was set up by Government during World War II when defence contracts had to be placed on cost-plus basis and cost and price had to be verified by an independent Government agency. After independence and with growth of industrialisation, role of the Organisation changed and it became a body to render professional assistance to different ministries. committees and other agencies of Government in cost and management accountancy.

FINANCE COMMISSION

Under the Constitution, Finance Commission is to be constituted every fifth year or earlier if it is thought necessary to make recommendations to President as to : (i) distribution between the Union and states of net proceeds of taxes which are to be or may be, divided between them and allocation between states of respective shares of such proceeds; (ii) principles which should govern grants-in-aid of the revenues of states in need of such assistance out of Consolidated Fund of India, and (iii) any other matter referred to the Commission by President in the interest of sound finance. Recommendations of the Commission together with an explanatory memorandum as to the action taken thereon are laid before each House of Parliament. So far nine finance commissions have been constituted since the commencement of the Constitution.

Ninth Finance Commission submitted its first report for 1989-90 to President on 29 July 1988. Government accepted the recommendations of the Commission regarding devolution of income tax, Union excise duties, additional duties and excise in lieu of sales tax, grants in lieu of tax on railway passenger fares, financing of relief expenditure and debt relief. In regard to grants-in-aid, Government accepted the recommendation of the Commission with the proviso that the recommendation relating to grants-in-aid for meeting requirements of the revenue component of state Plan may be kept in view by Planning Commission while finalising funding arrangements for Annual Plans of states for 1989-90. The report along with an 'explanatory memorandum' on action taken on recommendation contained therein was placed on the table of the Lok Sabha on 2 September 1988.

Ninth Finance Commission had estimated total amount of transfer of resources to states in 1989-90 on the basis of the recommendations at Rs 13,660 crore–Rs 11,783 crore by way of tax devolution and Rs 1,877 crore by way of grants. Besides, the Commission had recommended relief of Rs 201 crore in repayment of principal and Rs 244 crore in interest payment in 1989-90 in respect of drought loans to some states and special laons to Punjab and Madhya Pradesh.

The Commission had recommended a grant of Rs 984.48 crore to deficit states for revenue gap, Rs 171.67 crore for upgradation of standards of administration, Rs 5,551.55 crore for special problems and Rs 169.50 crore towards Centre's contribution to margin money for the year 1989-90. Upgradation grants have been recommended for 19 states (excluding Gujarat, Haryana, Karnataka, Maharashtra, Punjab and Tamil Nadu). Special problems grants have been recommended for 21 states (excluding Assam, Gujarat, Kerala and Meghalaya). Grants towards margin money have been recommended for all states.

REVENUE

Through tax laws and their administration, Department of Revenue seeks to achieve three main objectives to: build up an atmosphere of mutual trust between tax gatherers and tax payers; tackle problems of tax evasion, and reduce tax arrears, and also give incentives by suitable legislation in furtherance of socio-economic policies.

DIRECT TAXES

Direct taxes play a significant role in tax system not only as a revenue source, but as a powerful instrument for achieving social and economic objectives. First, direct taxes help make tax system progressive and reduce disparities in distribution of income and wealth. Secondly, direct taxes subserve the strategy of planning in many ways. Differential taxation of savings in specified assets helps promote savings and induce flow of investment into desirable channels. In India, both income tax as well as taxes on capital are designed to serve these objectives.

Income Tax Department administers these direct tax Acts: the Income-tax Act, 1961, the Wealth-tax Act, 1957, the Gift-tax Act, 1958, the Estate Duty Act, 1953 (discontinued in respect of death on or after 16 March 1985), the Companies (Profit) Surtax Act, 1964 (discontinued from 1 April 1988), the Hotel Receipts Tax Act, 1980 (levy discontinued from 28 February 1982) and the Expenditure Tax Act, 1987.

Table 13.7 gives figures of revenue collection under various major direct taxes and table 13.8 shows incidence of income tax at selected levels.

TABLE 13.7 DIRECT TAXES

(Rs crore)

Taxes	Amount of Revenue Collected				
	1985-86	1986-87	1987-88	1988-89	1989-90
1 Corporation Tax	2,583 64	3,159 96	3,433.00	4,406 56	1,195 89[1]
2. Income Tax	2,795.59	2,878.05	3,187.00	4,238 16	2,042.59[1]
3. Taxes on Wealth	153.00	174.15	100.58	115.06	99 67[1]
4. Estate Duty	21.96	13.39	8 02	6.11	2.23[1]
5 Gift Tax	12.0	9.26	8.23[1]	5 59	4.83[1]
6. Expenditure Tax[2]	—	—	5.69[1]	36.58	34.63[1]

1. Provisional figures and up to 31 October 1989.
2. Expenditure Tax was introduced from 1 November 1987.

COMBATING TAX EVASION

To check tax evasion and curb generation of black money, legislative and administrative measures are taken from time to time. Along with the policy of encouraging voluntary compliance, Government has taken punitive action against tax evaders. Systematic survey, search and seizure in

TABLE 13.8 INCIDENCE OF INCOME TAX AT SELECTED LEVELS

(Cases of Individuals—Financial Year 1988-89)

Net Income (Rs)	Tax (including surcharge)	Effective rate (per cent)
18,000	NIL	NIL
20,000	500	2.5
25,000	1,750	7.00
30,000	3,250	10.83
40,000	6,250	15.63
50,000	9,250	18.50
60,000	13,912.50	23.10
70,000	18,112.50	25.80
80,000	22,312.50	27.89
90,000	26,512.50	29.45
1,00,000	30,712.50	30.71
1,50,000	56,962.50	37.97
2,00,000	83,212.50	41.60
3,00,000	1,35,712.50	45.24
4,00,000	1,88,212.50	47.00
5,00,000	2,40,712.50	48.14
10,00,000	5,03,212.50	50.32

appropriate cases, in-depth scrutiny in a limited number of error-prone cases and launching of prosecutions against offenders of tax laws are undertaken by the Department to detect tax evasion and create effective deterrence against the same.

INDIRECT TAXES

Customs and Central excise duties are important sources of Central government revenue. These account for about 80 per cent of total revenue of the Union. Table 13.9 gives collection of figures in respect of customs and Central excise duties during the last three years.

TABLE 13.9 REVENUE FROM EXCISE AND CUSTOMS

(Rs crore)

	1987-88[1]	1988-89 (RBE)	1989-90 (BE)
Union Excise duties	16,426	18,547	22,175
Customs duties	13,702	15,812	17,887

1 Fiscal accounts figure
BE - Budget Estimates
RBE - Revised Budget Estimates

Taxation measures undertaken during the recent years intend to achieve reforms in the structure of customs and excise duties and are designed to further the basic objectives of economic growth, equity, simplicity and built-in revenue raising capacity. One of the measures of reforms in the system of indirect taxes was the bringing into force of new tariffs for customs and Central excise, based on the Harmonised Commodity Description and coding system.

During the years 1988 and 1989, tempo of action against evasion of Central excise duty had been further accelerated. Sustained efforts against tax evaders had resulted in detection of 5,334 cases in 1988 and 5,207 cases in 1989 (up to December), involving estimated evasion of Central excise duty of Rs 355.42 crore and Rs 862.64 crore respectively. During 1988, 130 and in 1989 (up to September) 109 prosecutions had been launched against evaders of Central excise duty.

SALES TAX

Sales tax is the most important source of revenue of states. Levy of taxes on sale or purchase of goods taking place within a state is a state subject of taxation. Administration of the Central Sales Tax Act, 1956, under which tax is levied on inter-state sale of goods–has been entrusted by law to state governments who collect and retain proceeds of such tax.

Total collection of sales tax covering Central sales tax, general sales tax, tax on motor spirit and purchase tax on sugarcane during 1988-89 is estimated at Rs 12,616 crore. Total collection of additional excise duty in lieu of sales tax for 1989-90 on sugar, tobacco and textiles is estimated at Rs 1,490 crore.

SMUGGLERS AND FOREIGN EXCHANGE MANIPULATORS

The Smugglers and Foreign Exchange Manipulators (Forfeiture of Property) Act, 1976 provides for forfeiture of illegally acquired property of smugglers and foreign exchange manipulators, their relatives and associates. The Act is implemented by five competent authorities with their headquarters at Delhi, Bombay Calcutta, Madras and Ahmadabad.

ANTI-SMUGGLING DRIVES

Drive against smuggling, tax evasion and other economic offences includes, among others, strengthening of existing intelligence network against smugglers and their activities, improving surveillance and surprise checks of vulnerable areas, giving speical attention to post-seizure operations such as adjudication, disposal of confiscated goods and prosecutions, etc. Narcotic Control Bureau, a separate authority was also created during 1986 for coordinating efforts in preventing and combating trafficking in narcotic drugs and psychotropic substances. Government has also initiated steps to curb open display and sale of goods of foreign origin.

In addition to tackling of outright smuggling of contraband goods, customs authorities take strict action against certain companies in organised sector indulging in tax evasion, import-export frauds, misuse of duty exemption scheme, evasion of customs/excise duty and foreign exchange violations. As a result of various anti-smuggling measures taken, goods worth Rs 443.15 crore during 1988 and worth Rs 554.59 crore during 1989 were seized.

POPPY CULTIVATION AND OTHER NARCOTIC DRUGS AND PSYCHOTROPIC SUBSTANCES

India is the largest producer and exporter of opium in the world. Cultivation of poppy, production and export of opium are under exclusive control of Government. India has been facing the problem of trafficking in illicit drugs escalating over the years. A number of legislative, administrative and preventive measures have been taken by Government from time to time to curb illicit trafficking in drugs. During 1989 (up to November), 2,651 kg opium, 16 kg morphine, 2,248 kg heroin, 31,937 kg *ganja*, 6,820 kg *charas* (hashish). 755 kg methanqualone, etc., were seized by various drug law enforcement agencies.

With a view to supplementing deterrent penal provisions of the Narcotic Drugs and Psychotropic Substances Act, 1985 for immobilisation of persons connected with drug trafficking, the Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988 (No. 7 of 1988) was enacted and given effect from 4 July 1988. The maximum period of detention provided under the Act is for one year, while in cases where drug trafficking operations are in areas categorised as 'highly vulnerable' detention would be for two years. After the above law was brought into effect 244 detention orders had been issued and 183 persons detained as on 30 September 1989.

The Narcotic Drugs and Psychotropic Substances Act, 1985 has been further strengthened, *inter alia*, by making drug offences non-bailable and providing seizure and forfeiture of properties related to drug trafficking and death penalties in certain specific cases on the second conviction.

Close liaison and cooperation are maintained with international bodies like INTERPOL/ICPO, Customs Cooperation Council, International Narcotics Control Board, United Nations Division of Narcotic Drugs, etc., to curb narco-terrorism.

GOLD CONTROL

Gold control is administered under the Gold (Control) Act, 1968 and rules and regulations made thereunder. Gold control administrator is also an additional secretary to Government in Ministry of Finance with regional office at Bombay. The Gold (Control) Act is implemented through various collectors of Central excise and customs.

Gold trade is regulated by a system of licensing of dealers and certification of goldsmiths and through maintenance of prescribed accounts and submission of returns.

There are two gold mines in the country, namely, Bharat Gold Mines Limited (BGML) and Hutti Gold Mines Limited (HGML). Till recently, entire quantity of gold produced by Bharat Gold Mines was acquired by Government. Recently, Government has permitted BGML to sell its gold in domestic market to licensed gold dealers through four main branches of State Bank of India at Bombay, Calcutta, Delhi and Madras. Production from Hutti Mines is sold to industrial users of gold at prevailing Bombay market price against permits issued by the regional office. In addition, some quantity of gold produced as a by-product by Hindustan Copper Limited has also been permitted to be sold in domestic market

CORPORATE SECTOR

First company legislation in India was an Act for registration of joint stock companies enacted in 1850. This was followed by the Companies Act, 1913. As a result of recommendations of a committee under the chairmanship of C.H. Bhabha to make suggestions for company law reform, the Companies Act, 1956 was enacted as a Central legislation. Prior to enactment of this Act, administration of companies' legislation was reponsibility of state governments.

The Companies Act, 1956 has been in force for the last 34 years and during this period it has been amended over 16 times. Amendments of 1969, 1974, 1977 and 1988 are of special importance. By the amendment of 1969, system of appointing managing agencies or secretaries or treasurers in companies was abolished. Under the 1974 amendment, powers of high court relating to certain Section of the Companies Act were transferred to Company Law Board. Scope of Section 43A was enlarged so as to treat large private limited companies as deemed public limited companies A new Section 58A was inserted to regulate acceptance of deposits by companies. Section 108A to Section 108H were introduced to check takeover bids by large groups (These Sections have since been transferred to the Monopolies and Restrictive Trade Practices Act, 1969). The 1977 amendment inserted, *inter alia*, Section 634A enabling Company Law Board to enforce its orders under Sections 17, 18, 19, 79, 141 and 186 of the Act as a decree of a court of law. The Companies Act, 1956 provides various powers to Central government and Company Law Board to monitor, regulate and control the affairs of companies. Salient features of the 1988 amendments are: (a) setting up of an independent Company Law Board to exercise such judicial and quasi-judicial functions as are presently being exercised either by court or Central government and proposed to be transferred to that Board; (b) dispensing with Government approval for managerial appointments and remuneration, subject to fulfilment of certain statutory guidelines which are proposed to be incorporated in the Act itself; (c) de-linking of rates of depreciation from rates specified under the Income-Tax Act and laying down rates of depreciation in the act itself to reflect true and fair view of the state of affairs of the company; (d) protecting the interest of investors by providing for intervention by

Company Law Board against non-payment of public deposits and certain other matters, compulsory redemption of preference shares in certain cases, requiring companies to disclose reasons for refusal to register transfer of shares, protecting the rights of the transferee pending mutation of his name in the register of members, and also compulsory listing of all public issues; (e) reducing unnecessary cost or burden by requiring companies to attach only an abridged version of balance sheets and auditors' report to members, and (f) provision for disclosure of information relating to conservation of energy, technology absorption, foreign exchange earnings and outgo as well as particulars of employees having some minimum stake in the company and drawing remuneration in excess of that drawn by managerial personnel

Department of Company Affairs has adopted revised industrial classification of joint stock companies (1988) from 1 April 1989 Of the 16,007 companies registered during April-December 1989, 48 4 per cent were proposed to be engaged in manufacturing, 24.5 per cent in banking activities including financial services and 10.9 per cent in wholesale and retail trade. Remaining 16.2 per cent companies were proposed to be engaged in agriculture, mining and quarrying, electricity generation, construction, transport and communication and community, social and personal services.

Number of joint stock companies, both government and non-government, incorporated under the Companies Act, 1956 and at work in India as on 31 March 1989 was 1,79,511 Of these, 1,77,238 companies were limited by shares, 319 with unlimited liability and 1,954 were limited by guarantee or were associations not for profit. The 1,77,238 companies limited by shares had a paid-up capital of Rs 52,287 crore. These comprised 19,546 public limited companies and 1,57,692 private limited companies with paid-up capital of Rs 22,139 crore and Rs 30,148 crore respectively.

Table 13.10 shows the number of companies and paid-up capital (government and non-government taken together)

NEW REGISTRATIONS

Over 16,000 new companies limited by shares with authorised capital of Rs 7,290 crore were registered under the Companies Act during the first nine months of 1989-90 (April-December) as against 16,157 (authorised capital Rs 3,983 crore) during the corresponding period last year. Of companies registered during 1988-89 (April-December) 15 were government companies and 15,992 non-government with authorised capital of Rs 5,122 crore and Rs 2,168 crore respectively. Sixty five companies limited by guarantee and associations not for profit and five companies with unlimited liability were also registered during the same period. However, during 1988-89 taken as the whole year, 21,891 new companies limited by shares with authorised capital of Rs 4,795 crore were registered. Of these 27 were government companies and 21,864 non-Government with authorised capital of Rs 2,465 crore and Rs 2,330 crore respectively. Ten non-

TABLE 13.10 COMPANIES AT WORK

As on 31 March	Companies Limited by Shares				Companies		Companies with	Companies Limited
	Public Limited		Private Limited		Total		unlimited liability	by guarantee and
	Number	Paid-up capital (Rs crore)	Number	Paid-up capital (Rs crore)	Number	Paid-up capital (Rs crore)	(Number)	associations not for profit (Number)
1951	12,568	566 5	15,964	208 9	28,532	775 4	—	1,213
1961	6,702	948 2	19 447	870 3	26,149	1,818.5	—	1,169
1971	6,690	2,091 5	23,632	2,422 2	30,322	4,513 7	—	1,220
1981	9,740	4,645 5	52,974	10,090 0	62,714	16,356 7	176	1,478
1982	10,543	6,267 0	61,859	12,668 5	72,402	18,935 5	219	1,496
1983	11,782	7,470 3	71,121	15,586 0	82,903	23,056 3	252	1,536
1984	12,950	8,430 0	81,314	18,070 4	94,264	26,500 4	282	1,598
1985	14,568	9,888.5[1]	92,801	20,197.9[1]	1,07,369	30,086.4[1]	295	1,677
1886	16,125	11,776 7[1]	1,06 034	23,907 5[1]	1,22 159	35,684.2[1]	298	1,739
1987	17,551	16,131 1[1]	1,20,635	26,692.8[1]	1,38,186	42,829.9[1]	299	1,817
1988	18,459	20,694 7[1]	1,37,090	27,781,9[1]	1,55,549	48,476 6[1]	309	1,879
1989	19,546	22,139 0[2]	1,57,692	30,147 9[2]	1,77,238	52,286 9[2]	319	1,953

1. Provisional.
2. Preliminary.

government companies with unlimited and 76 non-government companies with liability limited by guarantee and associations not for profit were also registered during the year.

CAPITAL ISSUES

Section 60 of the Companies Act requires that prospectus issued by or on behalf of companies or in relation to an intended company, inviting offers from public for subscription or purchase of any shares or debentures be delivered to registrars of companies for registration. Section 67(3) provides that if offer or invitation can properly be regarded as not being calculated to result, directly or indirectly, in shares or debentures becoming available for subscription or purchase by persons other than those receiving offer or invitation or otherwise as being a domestic concern of persons making and receiving offer or invitation, such offer or invitation shall not be treated as made to public. Thus, prospectus for issue of shares or debentures by private placement is not required to be registered with registrars.

By 31 March 1989, 179 non-government, non-financial public limited companies delivered copies of prospectus to registrars of companies for registration under Section 60 of the Act for raising an amount of Rs 1,663 crore from public as against 119 prospectus delivered by companies in the previous year for raising Rs 563 crore. Of the 179 companies which issued prospectus during 1988-89, 161 companies (89.9 per cent) invited applications for equity share capital. Remaining 18 companies invited applications for equity share capital as well as debentures (6) or for debentures only (12). Issue of debentures related to fully secured convertible debentures (14), partly convertible debentures (2) and non-convertible debentures. Of the total amount of Rs 1,663 crore issued through the prospectus during 1988-89, Rs 1.084 crore or 65.2 per cent was offered to public and balance of Rs 579 crore or 34.8 per cent was earmarked for firm allotment to promoters, directors, existing shareholders and employees of the company, NRIs, financial institutions, banks and state industrial corporations. Twenty six per cent of the total amount issued and 39.9 per cent of the amount offered to public was under-written.

During 1989-90 (April-September) 108 non-government, non-financial public limited companies delivered to registrars of companies for registration, copies of the prostectus for raising Rs 2,182 crore from public. Of this Rs 1,872 crore or 85.8 per cent of the total was in the form of debentures. Of the total amount issued during this period 12.4 per cent was under-written by financial institutions and other under-writers.

COMPANIES WHICH CEASED TO WORK

During 1988-89, 200 companies went into liquidation or otherwise became defunct or ceased to work and were struck off under Section 560 (5) of the Companies Act, 1956. Comparative figures for some of the earlier years were: 1970-71 (472), 1980-81 (391), 1985-86 (263), 1986-87 (281) and 1987-88 (208).

GOVERNMENT COMPANIES

Table 13.11 gives number and paid-up capital of government companies at work for selected years

FOREIGN COMPANIES

As on 31 December 1989, there were 455 foreign companies in India as defined under Section 591 of the Companies Act, 1956. Of these 36 foreign companies established their place of business from April-December 1989. However, one company closed down its branch during this period.

ECONOMIC ROUND-UP

According to Economic Survey 1989-90 performance of economy during 1989-90 shows signs of a slow-down in output growth marked by some deceleration in industrial growth and agricultural production.

In 1988-89 economy recovered very quickly from the setback of the drought of 1987-88. Gross Domestic Product (GDP) in real terms recorded a growth rate of 10.4 per cent aided by a growth of agricultural production by 20.8 per cent and industrial production by 8.8 per cent. Overall inflation rate was contained at 5.7 per cent in terms of Wholesale Price Index (WPI) compared with 10.7 per cent and 8.5 per cent in terms of Consumer Price Index (CPI) compared with 10.9 per cent during 1987-88 respectively.

In 1989-90 although monsoon had been normal, it is unlikely that agricultural production would show a substantial increase over the bumper crop achieved last year. Growth of agricultural production is expected to be one per cent or so. Provisional data on index of industrial production for April-November 1989 shows an industrial growth of 5.2 per cent compared with 9.4 per cent during the corresponding period last year. Even after allowing for some improvement in industrial production during the remaining period of 1989-90, it is unlikely that industrial growth rate will exceed six per cent. Thus GDP growth during 1989-90 is estimated around 4-4.5 per cent, below average growth rate of around 5.9 per cent during first four years of Seventh Plan. Despite this down-turn during the current year, Seventh Plan targets of growth are likely to be achieved. Acceleration of growth in the eighties has not been matched by a corresponding acceleration in employment at least in organised sector. Hence direction of investment and public spending and choice of techniques will have to pay greater regard to this concern. Containment of inflation in 1989-90 and the past few years has been largely on supply management with food stocks and imports being used to check upward pressure on prices of essential commodities. In the past three years stocks of foodgrains ran down from 228 lakh tonnes in January 1987 to 126 lakh tonnes in January 1990 and imports of cereals, edible oils and sugar amounted to 28 lakh tonnes, 34 lakh tonnes and 10 lakh tonnes respectively. So a tighter control on budgetary deficits and liquidity growth and more rapid increase in output,

TABLE 13.11 GOVERNMENT COMPANIES AT WORK

As on 31 March	Public Limited		Private Limited		Total	
	Number	Paid-up capital (Rs crore)	Number	Paid-up capital (Rs crore)	Number	Paid-up capital (Rs crore)
1957	39	18 9	35	53 7	74	72 6
1962	41	23 5	113	606 2	154	629 7
1967	65	77 1	167	1,314 4	232	1,391 5
1972	107	156 0	245	2,213 1	352	2,369 1
1977	273	591 9	428	6,582 6	701	7,174.5
1982	374	2,183 9	520	11,125 4	894	13,309 3
1983	411	2,827 4	532	13,907 5	943	16,734 9
1984	427	3,315 6	546	16,195 0	973	19,510 6
1885	419	4,247 7	561	18,199 3	980	22,447 0
1986	443	5,356 0	577	21,731 8	1,020	27,087 8
1987	450	8,627 3	603	24,245 4	1,053	32,872 7
1988	520	12,086 8	584	25,082 5	1,104	37,169 3
1989	533	13,310 4[1]	601	27,296 4[1]	1,134	40,606 8[1]

1. Provisional

particularly of wage goods, has become even more essential. Imbalances between aggregate demand and supply spill over onto balance of payments demand rapid exports growth. Trends in the past three years provide good grounds for hope. Visible trade deficit has narrowed significantly in 1989-90 with exports (in rupee terms) rising by 38.3 per cent in the first nine months of the current year as against a growth of 20.7 per cent in imports. Increase in agricultural production has been stimulated largely by increase in use of key inputs like irrigation and fertilisers. From 1980-81 to 1988-89 average growth in agricultural production (in terms of physical output) was 5.4 per cent, in irrigation (in terms of gross irrigated area) 3.0 per cent and in fertiliser use (in terms of NPK) 8.9 per cent. In 1989-90, agricultural production is expected to grow by a little over one per cent as against 12.6 per cent increase in fertiliser use. Government also continued its policy of providing adequate and timely credit at subsidised rates to farmers to support agricultural and allied activities. In 1989-90, for more effective implementation of wage employment programmes, a new programme *Jawahar Rozgar Yojana* was introduced and merged with the existing National Rural Employment Programme (NREP) and Rural Landless Employment Guarantee Programme (RLEGP). Rs 2,623 crore (including Rs 523 crore as states' share and the subsidised value of foodgrains) was provided for the scheme to generate 83.70 crore mandays of employment.

Current down-turn in industrial growth is essentially attributable to poor performance of manufacturing sub-sector which accounts for more than three-fourths of total weight in the Index. It recorded a growth rate of only 3.6 per cent during April-November 1989 compared with 10.2 per cent in the corresponding period last year. Deceleration has been marked in a few key industries like sugar, steel, cement, fertilisers, cotton cloth (mill sector), commercial vehicles and consumer electronics. Mining and quarrying and electricity however performed significantly better during this period as compared to that during last year Slow-down in industrial growth in 1989-90 is due to a variety of reasons. In some industries like steel, sugar or phosphatic fertilisers, explanation lies in specific supply side factors. In some industries rapid expansion in recent years has proceeded beyond growth in demand leading to unutilised capacity while in others rate of growth of demand may have decelerated as backlogs of unfulfilled demand came down. Increase in prices during current year has been largely contributed by agro-based items like pulses, tea, oilseeds, sugar, *gur* and *khandsari*, and groundnut oil where production has either remained stagnant or has declined. Among manufactured items textiles, beverages, paper and paper products, leather and leather products, tobacco products and basic metals have also shown considerable increase. The increase in prices of metals, machinery and paper products is mainly due to higher import prices and those of textiles and leather products, to some extent, reflect increasing demand.

In order to contain the inflationary pressure, the RBI tightened selective credit controls and took certain measures to mop up excess liquidity. On the supply side Government maintained supplies of foodgrains and other essential commodities through public distribution system. Additional imports were undertaken, to the extent feasible as in the case of edible oils, pulses, rice and sugar, in order to maintain adequate supplies. During the year, administered prices of industrial items except for iron and steel and non-ferrous metals were kept unchanged. However, there had been substantial upward revisions in support/procurement prices of major agricultural commodities mainly to provide remunerative price environment and to augment production and procurement of various agricultural commodities.

FISCAL AND MONETARY POLICY

Union Budget for 1989-90 had sought to correct growing imbalances between revenues and expenditures. Actual outcome is however, likely to be much worse than budget estimates in Budget for 1989-90. Budget Deficit as conventionally reported is only a partial measure of fiscal imbalance that has built up over the eighties. Large deficits have been met by borrowings and debt of Central government has necessarily increased and interest payments now account for a substantial part of budget. Growing imbalances in fiscal system did not stem from any let-up in Government resource mobilisation rather it was due to increase in Government expenditure which, in turn, was financed by large borrowings. As has been the case during the first four years of Seventh Plan, India's balance of payments situation remained under considerable pressure during 1989-90 despite a buoyant trend in exports and a slow-down in growth of imports. Exports in rupee terms increased by 14.3 per cent in 1986-87, 26.4 per cent in 1987-88 and 28.9 per cent in 1988-89. On the other hand imports recorded an increase of 2.2 per cent in 1986-87, 11.5 per cent in 1987-88 and 25.9 per cent in 1988-89. Provisional data available so far indicates that during the first three quarters of current year exports recorded an increase of 38.3 per cent over the corresponding period las year. Imports registered a relatively slow growth at 20.7 per cent in terms o rupee. Net invisibles, on the other hand, are unlikely to show any improvement because of uncertain trends in net private transfers, relatively slow growth of tourist traffic and a steady increase in interest payments on past borrowings. Crux of the balance of payments problem during Seventh Plan lies in continuing high trade deficits and a declining role of invisibles in financing deficits. Deterioration in balance of payments position during Seventh Plan period is due to several unfavourable factors such a deceleration in growth of domestic oil production, bunching of repaymen obligations to IMF and other sources, limited availability of concessiona assistance and a rise in debt service payments on external debt. However Government has been attaching high priority to an improvement o balance of payments situation. This is sought to be achieved through acceleration of exports growth, efficient import substitution, pruden allocation of foreign exchange to various sectors, liberalisations of trad and industrial regime and improvements in infrastructural facilities for exports. Trends in value of exports and imports in recent months are encouraging. However, export performance in terms of both quality and volume needs to be improved even further and imports of bulk items need to be reduced to offset the effect of less favourable terms of trade.

14 Planning

PLANNING in India derives its objectives and social premises from Directive Principles of State Policy enshrined in the Constitution. Public and private sectors are viewed as complementary. Private sector covers not only organised industry but also small scale industries, agriculture, trade and a great deal of activity in housing, construction and other fields. Individual effort and private initiative are considered necessary and desirable in national endeavour on development with optimum of voluntary cooperation. Economic planning also envisages a growing public sector with massive investments in basic and heavy industries

Planning Commission was set up in 1950 to prepare the blue-print of development, taking an overall view of needs and resources of the country. The composition of the Commission on 31 January 1990 was as follows.

Vishwanath Pratap Singh Prime Minister	*Chairman*
Ramakrishna Hegde[1]	*Deputy Chairman*
Devi Lal Deputy Prime Minister and Minister of Agriculture	*Member*
Prof. Madhu Dandavate Minister of Finance	*Member*
Ajit Singh Minister of Industry	*Member*
Dr. J. D. Sethi	*Member*
Dr. Rajni Kothari	*Member*
Lakshmi Chand Jain	*Member*
Smt. Ela Bhatt	Member
Dr. Arun Ghosh	*Member*
Dr. A. Vaidyanathan	*Member*
Rahamatullah Ansari	*Member*
T.N. Seshan	Member
Dr. Har Swarup Singh	*Member*
P.B. Krishnaswamy	*Secretary*

FIRST PLAN

First Plan (1951-56) had a two fold objective: to correct the dis-equilibrium in economy caused by Second World War and partition of the country, and to initiate simultaneously a process of allround balanced development. This was to ensure increase in national income and steady improvement in living standards. Keeping in view large scale imports of foodgrains in 1951 and inflationary pressures on economy, the Plan accorded the highest priority to agriculture including irrigation and power projects. About 44.6 per cent of the total outlay of Rs 2,069 crore in the public sector (later raised to Rs 2,378 crore) was allotted for its development. The Plan also aimed at increasing the rate of investment from five to about seven per cent of national income

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[1] He has since resigned.

SECOND PLAN

In 1954 it was decided that main plank of economic policy should be to achieve a socialistic pattern of society. For this basic criteria would be social gain and greater equality in income and wealth and not private profit. Second Plan (1956-61), therefore, sought to promote a pattern of development ultimately leading to a socialistic pattern of society in the country. In particular, it stressed that the benefits of economic development should accrue more to relatively less privileged sections of society. There should be a progressive reduction in concentration of income, wealth and economic power.

Main aims of Second Plan were: (i) 25 per cent increase in national income; (ii) rapid industrialisation with particular emphasis on development of basic and heavy industries; (iii) large expansion of employment opportunities, and (iv) reduction of inequalities in income and wealth and a more even distribution of economic power. The Plan also aimed at increasing the rate of investment from about seven to 11 per cent of national income by 1960-61. It laid special stress on industrialisation—increased production of iron and steel, heavy chemicals including nitrogenous fertilisers and development of heavy engineering and machine-building industry.

THIRD PLAN

Third Plan (1961-66) aimed at securing a marked advance towards self-sustaining growth. Its immediate objectives were to : (i) secure an increase in national income of over five per cent per annum and ensure a pattern of investment which could sustain this rate of growth; (ii) achieve self-sufficiency in foodgrains and increase agricultural production to meet requirements of industry and exports; (iii) expand basic industries like steel, chemicals, fuel and power and establish machine-building capacity, to meet requirements of further industrialisation within a period of ten years or so mainly from country's own resources; (iv) utilise fully manpower resources and ensure a substantial expansion in employment opportunities, and (v) establish progressively greater equality of opportunity and bring about reduction in disparities of income and wealth and a more even distribution of economic power. The Plan aimed at increasing national income by about 30 per cent from Rs 14,500 crore in 1960-61 to about Rs 19,000 crore by

1965-66 (at 1960-61 prices) and per capita income by about 17 per cent from Rs 330 to Rs 385 during the same period.

ANNUAL PLANS

Indo-Pak conflict in 1965, two successive years of severe drought, devaluation of currency, general rise in prices and erosion of resources delayed finalisation of the Fourth Plan Instead, between 1966 and 1969, three Annual Plans were formulated within the framework of the draft Fourth Plan. These constraints kept down the size of development outlay during this period.

FOURTH PLAN

Fourth Plan (1969-74) aimed at accelerating tempo of development and reducing fluctuations in agricultural production as well as the impact of uncertainties of foreign aid It sought to raise the standard of living through programmes designed to promote equality and social justice The Plan laid particular emphasis on improving condition of less privileged and weaker sections especially through provision of employment and education. Efforts were also directed towards reduction of concentration and wider diffusion of wealth, income and economic power

The Plan aimed at increasing net domestic product (at 1968-69 factor cost) from Rs 29,071 crore in 1969-70 to Rs 38,306 crore in 1973-74 In terms of 1960-61 prices, this implied an increase from Rs 17,351 crore in 1968-69 to Rs 22,862 crore in 1973-74. Average annual compound rate of growth envisaged was 5.7 per cent.

FIFTH PLAN

Fifth Plan (1974-79) was formulated against the backdrop of severe inflationary pressures. Major objectives of the Plan were to achieve self-reliance and adopt measures for raising consumption standards of people living below poverty line. This Plan also gave high priority to bringing inflation under control and to achieve stability in the economic situation. It targetted an annual growth rate of 5.5 per cent in national income. Four Annual Plans pertaining to Fifth Plan period were completed. It was subsequently decided to end Fifth Plan with the close of Annual Plan 1978-79 and initiate work for a new Plan for next five years with new priorities and programmes.

SIXTH PLAN

Sixth Plan (1980-85) was conceptualised keeping in view achievements and shortcomings of the past three decades of planning. Removal of poverty was foremost objective of the Plan, even though it was recognised that task of this magnitude could not be accomplished in a short period of five years.

Strategy adopted for the Plan consisted essentially in moving simultaneously towards strengthening infrastructure for both agriculture and industry so as to create conditions for an accelerated growth in investments, output and exports and provide through special programmes designed for the purpose, increased opportunities for employment especially in rural areas and unorganised sector, and meeting minimum basic needs of people. Stress was laid on dealing with inter-related problems through a system approach rather than in separate compartments, greater management efficiency and intensive monitoring in all sectors and active involvement of people in formulating specific schemes of development at local level and securing their speedy and effective implementation.

Sixth Plan actual expenditure stood at Rs 1,09,291.7 crore (current prices) as against the envisaged total public sector outlay of Rs 97,500 crore (1970-80 prices) accounting for a 12 per cent increase in nominal terms. Average annual growth rate for the Plan was 5.2 per cent, targetted growth rate for this period. Details of Sixth Plan outlays/expenditure are shown in table 14.1

SEVENTH PLAN

Seventh Plan (1985-90) emphasised policies and programmes aiming at accelerating growth in foodgrains production, employment opportunities and raising productivity within the framework of basic tenets of planning, namely, growth, modernisation, self-reliance and social justice. With stress on generation of productive employment, the Plan aimed at a significant reduction in incidence of poverty and improvement in quality of life for rural and urban poor. Improvement in productivity and efficiency sought to reduce cost of capital and resource-intensive goods and services most of which are widely used in all sectors of the economy. This objective, while expanding the scale of domestic market and improving international competitiveness of Indian economy, shifted the focus of planning for industry away from massive investments in new facilities to capacity and productivity, enhancing improvement in existing facilities.

The Plan envisaged a total public sector outlay of Rs 1,80,000 crore including current development outlays of Rs 25,782 crore and gross investment of Rs 1,54,218 crore. Growth rate of gross domestic product at factor cost was expected to be five per cent. This was in line with the growth rate achieved in Sixth Plan and a little higher than the average for the past decade. Incremental capital output ratio which relates the increase in GDP at market prices to total investment over the Plan period, was expected to be around five per cent.

EIGHTH PLAN APPROACH

New approach to Eighth Plan aims at correcting distortions by pursuing the following objectives: (i) strengthening federal structure, (ii) decentralisation of authority, (iii) people's participation, (iv) development of rural sector, (v) focus on women's role in economic activity and (vi) employment.

A major initiative undertaken by the reconstituted Planning Commission is new thinking on basic postulates of development process in order to ensure that Planning becomes an instrument of social justice, economic emancipation, people's participation and cultural regeneration. Development is sought to be viewed as an holistic endeavour, inter-relating various dimensions, sectors and disciplines. The draft Approach document entitled "Towards Social Transformation" has already been endorsed

The new approach to planning envisages reorientation not only of the focus and priorities of planning but also its mechanisms and procedures so as to achieve closer association of the Planning Commission with state planning organisations on the one hand and public participation on the other In the context of achieving faster development of rural sector and to concretise Government's decision to ensure the flow of 50 per cent of public sector outlay to agricultural/rural sectors, necessary steps have been taken and guidelines issued. Broadly, policy parameters like larger employment generation to guarantee 'right to work' to every citizen, reduction of income inequalities and regional imbalances, greater investment of resources in rural development programmes, development of village and small industries, ensuring greater efficiency of public entrprises, larger flow of resources to rural areas and achieving higher rate of agricultural production and productivity, have been kept in view in the finalisation of the Annual Plan 1990-91 outlays of Central ministries/departments.

OUTLAY AND INVESTMENT IN PLANS

Seventh Plan envisaged a public sector Plan outlay of Rs 1,80,000 crore. For the Annual Plan 1985-86, outlay was fixed at Rs 32,238.56 crore against which actual expenditure was Rs 33,059.90 crore In addition, an amount of Rs 361.19 crore of Central assistance was provided towards relief against natural calamities.

Plan provision For 1986-87 was Rs 39,051.53 crore and actual expenditure amounted to Rs 39,149.11 crore. Central assistance provided for relief against natural calamities during the year was Rs 556.05 crore. Against the Plan outlay of Rs 44,698.43 crore for 1987-88, expenditure was Rs 42,920.55 crore An additional amount of Rs 1,113.55 crore was also provided towards relief against natural calamities.

For 1988-89, the outlay had been fixed at Rs 49,817.83 crore against which revised extimate was Rs 49,442.17 crore. In addition, Rs 575 crore was provided as advance plan assistance for relief against natural calamities. Annual Plan for 1989-90 envisaged an outlay of Rs 57,597.52 crore.

Details of Plan outlays for various sectors have been given in table 14.2

ACHIEVEMENTS

During the period 1950-51 to 1984-85, net national product (NNP) at factor cost (national income) at 1970-71 prices increased from Rs 16,731

TABLE 14.1 PROGRESS OF SIXTH PLAN OUTLAYS/EXPENDITURE–CENTRE, STATES AND UNION TERRITORIES

(Rs crore)

Heads of Development	Sixth Plan Outlay 1980-85	Annual Plan 1980-81 (Actuals)	Annual Plan 1981-82 (Actuals)	Annual Plan 1982-83 (Actuals)	Annual Plan 1983-84 (Actuals)	Annual Plan 1984-85 (Actuals)	Total Sixth Plan (Actuals)
1 Agriculture	5,695 1	981.5	1,129 4	1,261.0	1,427.0	1,824 6	6,623.5
2 Rural Development	5,363 7	1,040 2	1,100 9	1,295 8	1,497 9	2,062.0	6,996.8
3 Special Area Programme	1,480 0	206 4	258 5	335 1	356.8	423.5	1,580.3
4. Irrigation and Flood Control	12,160 0	1,777 3	1,948 4	2,105.2	2,445.4	2,653 6	10.929.9
5. Energy	26,535 4	3,828.0	5,064 9	6,409 6	7,276 6	8,172.2	30,751.3
(a) Power	19,265 4	2,656 8	3,182 3	3,708 56	4,095 5	4,658 5	18,298 6
(b) New and Renewable Sources of Energy	100.0	4 3	13.9	22 5	33 7	88 7	163.1
(c) Petroleum	4,300 0	735 2	1,204 8	1,823.1	2,197.8	2,521 2	8,482.1
(d) Coal	2,870 0	431 7	663 9	855 5	952 6	903.8	3,807.5
(e) Energy Development	—	—	—	—	—	—	—
6. Industry and Minerals	15,017 6	2,194.5	2,777 9	3,075 3	3,916 4	4,983 4[1]	19,647.5[1]
(a) Village and Small Scale Industries	1,780 5	273.2	322 9	326 1	402 6	620.3	1,945.1
(b) Large and Medium Industries	13,237 1	1,921 3	2,360 0	2,709.2	3,478.8	4,321 1[1]	14,790.4[1]
(c) Others	—	—	95.0	40.0	35.0	42 0	212.0
7. Transport	12,412 0	2,163.0	2,583 1	2,752.8	3,075 8	3,633 7	14,208.4
(a) Railways	5,100 0	973 0	1,210 0	1,319 5	1,419.6	1,664.6	6,586.7
(b) Others	7,312 0	1,190 0	1,373.1	1,433.3	1,656 2	1,969.1	7,721.7
8. Communications and Information and Broadcasting	3,134 3	356.7	576 1	674 8	864.5	997.4	3,469.5
9. Science and Technology	865.2	97 4	148 3	208 1	228.5	338.1[1]	1,020.4[1]
10. Social Services	14,035 2	2,074 6	2,487 2	2,950 2	3,834.7	4,569.7	15,916.6
(a) Education	2,523 7	339 5	435 7	538 6	697.8	965.0	2,976.6
(b) Health and Family Planning	2,831 0	411 5	530.4	675.2	853.1	942.0	3,412.2
(c) Housing and Urban Development	2,488.4	477.3	488.1	507.3	656.9	709.5	2,839.1
(d) Other Social Services	6,192 1	846.3	1,033.0	1,229 1	1,626.9	1,953.4	6,688.7

TABLE 14.1 (Continued)

Heads of Development	Sixth Plan Outlay 1980-85	Annual Plan 1980-81 (Actuals)	Annual Plan 1981-82 (Actuals)	Annual Plan 1982-83 (Actuals)	Annual Plan 1983-84 (Actuals)	Annual Plan 1984-85 (Actuals)	Total Sixth Plan (Actuals)
11 Others	801 5	112 8	136 2	215 0	163 9	219 6	847 5
12 Total (1 to 11)	97,500 0	14,832 4	18,210 9	21 282.9	25,087 5	29,878 0	1,09,291 7
	—	(15,023 4)	(18,372 9)	(21,724 9)	(25,313 6)	(30,032 5)	(1,10,467 3)
(a) Central Plan	47,250 0	7,049 3	9,197 0	11,284 9	13,644 0	16,650 0	57,825 2
(b) State Plans	48,600 0	7,527 5	8 666 3	9,587 8	10,994 8	12,681 8	49,458 2
	—	(7,718 5)	(8,828 3)	(10,029 8)	(11,220 9)	(12,836 6)	(50,633 8)
(c) Union Territory Plans	1,650 0	255 6	347	410 2	448 7	546 2	2 008 3

Note Figures in brackets are inclusive of expenditures (Rs 191 crore in 1980-81, Rs 162 crore in 1981-82, Rs 442 crore in 1982-83, Rs 226 crore in 1983-84 and Rs 154 5 crore in 1984-85) on works financed by Central assistance for relief against natural calamities

1 Excludes Rs 2 85 crore on account of National Test House

TABLE 14.2 SEVENTH PLAN OUTLAYS/EXPENDITURE–CENTRE, STATES AND UNION TERRITORIES

(Rs crore)

Heads of Development	Seventh Plan Outlay 1985-90	Annual Plan 1985-86 (Actuals)	Annual Plan 1986-87 (Actuals)	Annual Plan 1987-88 (Actuals)	Annual Plan 1988-89 (R E.)	Annual Plan 1989-90 (Outlay)
1. Agriculture and Allied Activities	10,523 62	1,825 92	2,215 79	2,742 92	2,846.45	3,054 82
2 Rural Development	8,906 08	2,226 14	2,667 65	3,146 42	3,054.81	3,100.11
3 Special Area Programmes	2,803 59	447 33	627.60	677 05	778 81	905.25
4 Irrigation and Flood Control	16,978 65	2,792 24	3,221 63	3,346 94	3,486 36	3,871.53
5 Energy	54,821 26	9,613 21	11,402 78	11,594 48	13,700.99	17,181.79
(a) Power	34,273 46	5,615 53	6,701 45	7,096 29	8,736 98	11,422.47
(b) Petroleum	12,627 67	2,869.88	3,326.41	3,019 55	3,055 13	3,356.00
(c) Coal and Lignite	7,400 58	995 04	1,233 05	1,362 93	1,775.31	2,262.00
(d) Non-conventional Sources of Energy	519 55	132 76	141 87	115.71	133 57	141 32
6. Industry and Minerals	22,415 55[3]	5,502 88[3]	5,619 67[3]	5,537 05[4]	6,482 93[4]	7,032.08[4]
(a) Village and Small Industries	2,752.74	524 35	615 74	616 85	679.51	796 43
(b) Other Industries	19,662 81	4,978 53	5,003 93	4,920.20	5,803 42	6,235.65
7. Transport	22,644 86	4,072 19	5,201 43	6 034 61	6,980.08	7,851.72
(a) Railways	12,334 55	1,941 68	2,697 06	3,418 87	3,850.00	4,450.00
(b) Others	10,310 31	2,130 51	2,504 37	2,615 74	3 130.08	3,401.72
8. Communications	4,474 52	942 12	1,085 61	1,463 95	2,312.45	2,859.84
9 Science and Technology and Environment	2,463 06	404 78	512 38	585.42	785 75	798.14
10 General Economic Services	1,395 60[1]	179 05	423.12	386 07[3]	603 88[3]	1,269.57[3]
11 Social Services	31,545 24	4,858 45	5,901 99	7,006 40	8,107 67	9,162.33
(a) Education	6,382 65	876 79	1,014 38	1,610 84	1,904.00	2,288.59
(b) Medical and Public Health	3,392 89	579 89	641 77	724 31	837 46	937.76
(c) Family Welfare	3,256 26	479 81	561 11	607.39	634.95	652 96
(d) Housing	2,428 21	437 94	561 04	506 36	565 37	617.08

(Rs crore)

Heads of Development	Seventh Plan Outlay 1985-90	Annual Plan 1985-86 (Actuals)	Annual Plan 1986-87 (Actuals)	Annual Plan 1987-88 (Actuals)	Annual Plan 1988-89 (R.E.)	Annual Plan 1989-90 (Outlay)
(e) Urban Development	1,801 29	323 17	359.01	400.95	462.39	610.19
(f) Other Social Services[2]	14,283 94	2,160.85	2,764.68	3,156.55	3,703.50	4,055.75
12. General Services	1,027.97	195 59	269.46	399.24	301.99	510.34
Total (1 to 12)	1,80,000 00	33,059 90	39,149.11	42,920.55	49,442.17	57.597.52
		(33,421 09)	(39,705.16)	(44,034 10)	(50,017 17)	
(a) Central Plan	95,534.00	19,115 47	22,401 76	24,583 68	30,165.99	34,445.97
(b) State Plans	80,698.00	13,249 52	16,042.98	17,627 53	18,506.18	22,292.65
		(13,610.71)	(16,599 03)	(18,741 08)	(19,081.18)	
(c) UT Plans	3,768.00	694.91	704 37	708 34	770 00	858.90

Note: As per revised budget classification

: Figures in brackets are inclusive of expenditure on works financed by Central assistance for relief against natural calamities (Rs 361.19 crore in 1985-86, Rs 556.05 crore in 1986-87, Rs 1,113.55 crore in 1987-88 and Rs 575.00 crore in 1988-89)

: Annual Plan outlays/expenditure in respect of some erstwhile union territories have been included in state plans figures consequent on their attainment of statehood. The Seventh Plan outlays are, however, as per the then existing situation.

: Actual Plan expenditure for 1985-86 and 1986-87 are as published in previous Annual Plan documents.

: Outlay/expendiutre for Petro-chemical and Engineering units under Ministry of Petroleum and Natural Gas has been excluded from Energy and included under Industry and Minerals

: R.E.—Revised Estimates.

1. Includes provision for district planning and National Savings Scheme
2. Provision for Special Employment Scheme is included
3. Includes National Informatics Centre
4. Excludes National Informatics Centre.
5. Does not include additional allocation made subsequent to Central Budget 1989-90

crore to Rs 57,243 crore implying a compound growth rate of nearly 3.7 per cent per annum. During First Plan (1951-56), national income increased by 19.3 per cent implying a compound growth rate of 3.6 per cent per annum as against the targetted growth rate of 2.1 per cent per annum. In Second Plan (1956-61), as against the envisaged growth rate of 4.5 per cent per annum, actually achieved rate was four per cent per annum.

In Third Plan (1961-66), there was a sharp decline in the growth rate at 2.2 per cent per annum as against the targetted rate of 5.6 per cent per annum. It was primarily due to steep fall in agricultural production and as a consequent decline in NNP of 5.9 per cent in the last year of Third Plan. However, during the subsequent three Annual Plans, economy picked up and growth rate of national income during 1966-69 was four per cent per annum, whereas during Fourth Plan (1969-74) it slightly declined to 3.4 per cent per annum. During Fifth Plan (1974-79), the rate of growth of 3.2 per cent per annum was an achievement. In 1979-80, the national income declined sharply by 5.2 per cent over the previous year. However, an average growth rate of 5.3 per cent per annum was recorded during Sixth Plan period.

Based on new series of National Income Statistics at 1980-81 prices, growth rate for the first three years of Seventh Plan was estimated at six per cent in 1985-86, 3.6 per cent in 1986-87 and 2.0 per cent in 1987-88 which was a drought year and witnessed a fall in agricultural production.

Index of agricultural production with the triennium ending 1969-70 as base, rose from 71.9 at the end of First Plan to 86.7 at the end of Second Plan. During Third Plan, performance of agriculture was not quite satisfactory. Widespread drought during 1965-67 slowed down the rate of growth in agricultural production and led to increased import of foodgrains and other items. Index of agricultural production reached the level of 80.8 in 1965-66 and 80.7 in 1966-67. These drought years also witnessed introduction of the best available agricultural technology for the first time in India in the form of high-yielding variety programme and multiple cropping programme. The following years recorded substantial improvement in agricultural production. As a result the index, after recovering to 98.9 points in 1967-68 increased steadily to 112.4 in 1973-74. The next year 1974-75 was again a bad year for agriculture when the index declined to 108.6. This was followed by considerable improvement in 1975-76 when it touched 125.1. In 1976-77, the index registered a decline of 8.8 points and stood at 116.3 but again shot up to 132.9 in 1977-78 and 138 in 1978-79. The year 1979-80 witnessed a fall by 21 points when index number of agricultural production slipped to 117. It recovered to 135.3 in 1980-81 and further increased to 142.9 in 1981-82.

During 1982-83, *kharif* production was adversely affected due to way-ward monsoon which was inadequate, uneven and untimely. Even so, fall in foodgrains production was only marginal, indicated by a drop of 5.4 points in the production index. Agricultural production registered significant improvement in 1983-84 which was a near normal year from the point of view of weather conditions. Index of agricultural production increased from 137.5 in 1982-83 to 156.4 in 1983-84 and production of foodgrains touched a record level of 15.237 crore tonnes. Weather conditions during 1984-85 were not very satisfactory. As a result, production of foodgrains declined to 14.554 crore tonnes and index number of agricultural production also declined marginally to 154.6. During *kharif* 1985, onset of the south-west monsoon was delayed over central and northern states and its behaviour during the season was erratic over many states.

However, weather conditions during the *rabi* season were on the whole rather favourable to crop production. Consequently, foodgrains output during 1985-86 stood at 15.044 crore tonnes. Weather conditions during 1986-87 continued to be unsatisfactory. Monsoon was delayed over eastern states, while southern states experienced dry spells leading to moisture stress conditions. As a result, only 14.312 crore tonnes of foodgrains production could be achieved during 1986-87. The year 1987-88 witnessed severe drought conditions in most parts of the country and the incidence of heavy floods in the eastern states. The foodgrains production consequently further fell down to 13.841 crore tonnes. During 1988-89, production of foodgrains recorded a new peak of 17.217 crore tonnes indicating a substantial increase of 1.980 crore tonnes over the previous peak of 15.237 crore tonnes achieved in 1983-84. The target fixed for 1989-90 was 17.500 crore tonnes.

In the field of irrigation, the potential created from major, medium and minor schemes increased from 2.26 crore hectare in 1950-51 to 2.626 crore hectare at the end of First Plan, 2.909 crore hectare by Second Plan, 3.361 crore hectare at the end of Third Plan and 3.71 crore hectare by 1968-69. At the end of 1973-74, the potential created was 4.42 crore hectare. By 1978-79 the corresponding figure was 5.446 crore hectare and by 1984-85 it was 6.753 crore hectare. Potential created by 1987-88 was 7.376 crore hectare.

Total installed generating capacity (including non-utility) which was only 2,300 mw in 1950, increased to 47,705 mw by March 1985. Out of the Seventh Plan target for addition of installed capacity of 22,245 mw, 16,714 mw had been added during 1985-89, taking the total installed capacity on public utilities to 58,080 mw by March 1989.

Under rural electrification programme, 4.60 lakh villages had been electrified out of a total of 5.79 lakh villages (as per 1981 census) by November 1989. During 1988-89, 14,614 villages were electrified.

Large investments in industrial and mineral sectors particularly from the beginning of the Second Plan have brought about a significant transformation in the industrial scene. Rate of industrial growth had not been uniform during this period. After a steady growth of about eight per cent during initial period of 14 years, there was a fluctuating trend in industrial growth rate approaching near stagnancy in 1966-68, going up to a level of 9.6 per cent in 1976-77 and dipping to 1.4 per cent in 1979-80. During the decade 1970-71 to 1979-80, average growth rate had been about four per cent per annum. Average growth rate of industry in Sixth Plan period was nearly six per cent which was a small improvement over the average of about 5.3 per cent in preceding five years.

Seventh Plan envisaged an average annual growth rate of 8 7 per cent in the output of industry sector. For 1985-86, first year of Seventh Plan, actual growth rate achieved was 8.7 per cent as per revised index of industrial production (Base 1980-81 = 100). In 1986-87, second year of the Plan, growth rate achieved was 9.1 per cent. In 1987-88, it was dampened to a large extent by decline in production towards the end of the year, due to unprecedented drought. Growth rate recorded was only 7.5 per cent in 1987-88. Thus, over the first four years of Seventh Plan an average compound rate of 8.5 per cent per annum was achieved. Decline in industrial growth in 1987-88 was reversed and during 1988-89, growth rate of 8.8 per cent was achieved as compared to corresponding period of the previous year.

Government initiated a number of measures late in Sixth Plan and in early years of Seventh Plan, with the objective of removing constraints on industrial growth and providing a more liberal and congenial environment for development of industries. A number of steps were taken to liberalise industrial procedures relating to creation of capacity, import of technology, etc., to encourage competition in Indian industry so as to ensure reasonable prices and improvement in quality. These include re-endorsement of capacities, delicensing of industries including specified MRTP and FERA industries and broad-banding of a large number of industries, especially in areas of high technology, industries linked with energy production and utilisation, as well as mass consumer goods industries. Provisions of the MRTP Act and FERA regulations were rationalised to facilitate entry into industrial areas of high priority. Expansion of existing units has been liberalised and investment in modernisation/renovation/replacement, as well as export production, has been exempted from industrial licensing. Licensing of new capacity has been liberalised and concept of minimum economic scale introduced to promote production efficiency, taking advantage of economies of scale.

A number of policy measures have been initiated for development of specific industries like textiles, sugar, steel, electronics, etc. Steps have also been taken to tackle the problem of industrial sickness. These include : (i) system for early detection of industrial sickness introduced by Reserve Bank of India; (ii) various steps for checking industrial sickness and promoting industrial revival evolved by Industrial Reconstruction Bank of India; (iii) setting up of Board for Industrial and Financial Reconstruction, and (iv) setting up of Small Industries Development Fund in IDBI to provide refinancing assistance not only for development, expansion and modernisation but also for rehabilitation of sick industrial units in small scale sector.

Government has also set up modernisation funds for textiles and jute industries to cater to problems of those industries which account for a major share of industrial sickness.

Government is to establish 100 growth centres over a period of next five years to act as nuclei for industrial growth and promote accelerated development, especially in backward areas. About 70 such centres are intended to be developed in various states/UTs in the first phase, location has already been identified for 50 centres.

Educational system recorded a phenomenal growth during the last three decades. Number of institutions went up from 2,31,278 in 1950-51 to 7,75,232 by 1987-88.

Enrolment of students in 1987-88 (Classes I-VIII) was 1,228.58 lakh, comprising 743.77 lakh boys and 484.81 girls. It was 82.33 per cent (97.03 per cent boys and 66.81 per cent girls) of the projected population in the age group of 6-14. Because of rapid expansion in schooling facilities, literacy rate rose from 16.67 per cent in 1951 to 36.23 per cent in 1981. Nonetheless, there were over 43.7 crore illiterates in 1981. Seventh Plan envisaged to achieve universal elementary education and eradication of adult illiteracy in the age group of 15-35 by 1990. However, these targets are now expected to be achieved by 1995 under National Policy on Education.

PROGRAMME IMPLEMENTATION

Ministry of Programme Implementation (MPI), Management Service Arm of Government was set up in September 1985 to usher in a new system of goal-oriented management to closely monitor implementation of anti-poverty programmes, growth, production, distribution, transmission and performance of all industrial infrastructure sectors of economy and implementation of all Central sector industrial projects costing over Rs 20 crore each. It also assists various other ministries/departments of Government in preparation of annual action plans and review of their performance. The Ministry is also involved in preparation and evaluation of memorandum of understanding between large public enterprises and Government.

Monitoring of poverty alleviation programmes involves *vis-a-vis* monitoring of programmes like: (i) programmes for raising income, creating assets and improving quality of life of the poor; (ii) welfare of scheduled castes/scheduled tribes; (iii) some minimum needs programmes such as rural water supply, house sites and construction assistance, rural electrification, rural health, nutrition, elementary education, adult literacy and slum improvement; (iv) programmes aimed at increasing production and productivity and efficient distribution of consumer goods; (v) adoption of two-children norm, development of youth and women; (vi) conservation of environment, and (vii) making administration responsive to public needs. Table 14.3 indicates physical achievements of these programmes from 1982-83 to 1989-90.

Infrastructure monitoring by MPI includes both monitoring and coordination of production and growth with efficiency of infrastructure sectors *viz.*, power, coal, steel, railways, shipping and ports, cement, communications, fertilisers and petroleum Areas of monitoring include production, distribution and growth of core sectors including capacity utilisation, productivity and other related efficiency indicators Physical targets (for each area in respect of each infrastructure) are examined at the beginning of the year to identify inter-sectoral mismatches in input and output requirements of each sector in achieving targets during the year Overall growth in infrastructure performance from 1985-86 to 1988-89 as also the trend in capacity utilisation during the period, is given in tables 14.4 and 14.5 respectively.

Implementation of projects in Central public sector with an approved outlay of Rs 20 crore and above, is on continuous monitoring by this Ministry. Projects under implementation have been classified into mega projects (costing over Rs 1,000 crore), major projects (costing between Rs 100-1,000 crore) and medium projects (costing between Rs 20-100 crore). There are at present 321 projects, implementation of which is being monitored by this Ministry Of these 119 projects cost Rs 100 crore and above each.

Mega and major projects, in view of large quantum of investment involved, are monitored on a continuous basis every month through monthly flash report/exception report system. These projects along with all medium projects are covered in a detailed quarterly report. An extensive use of computer-based data storing and retrieval is adopted for up-to-date monitoring of the status of all projects After processing the monthly flash input reports in consultation with controlling administrative ministries/ departments, an exception report which is a self-contained single page of action document presenting the background information of the project and major unresolved problems affecting its implementation, is prepared for each mega/major project The number and anticipated investment in such projects as on 1 October 1989 is given in table 14.6.

Ministry of Programme Implementation has drawn up an Action Plan 1990-91, as part of its constant endeavour to improve monitoring and implementation of projects Project Management Audit will also be carried out in respect of one or two large projects having suffered time/cost over-run in initial stage of implementation, so that remedial measures to put the project on track could be suggested.

In addition to physical progress monitoring, expenditure progress monitoring (cost control) will also be done for better control over expenditure. Action Plan includes scrutiny and analysis of the Completion Reports on all completed projects with a view to drawing lessons for future. The milestones set for achievement in the Action Plan for 1989-90 have already been fully achieved.

TABLE 14.3 TARGETS AND ACHIEVEMENTS

Item	Unit	Achievements		Target	Achievement (April-September
		1987-88	1988-89	1989-90	1989-90
1	2	3	4	5	6
1 IRDP	(Thousand Numbers)	4,255	3,626 3	2 910 6	1,098 4
2 Employment generated under NREP	(Lakh)	3,707	3,776 1	73 94[1]	2,379[1]
3 RLEGP	-do-	3,159	2,755 4		
4 SSI Units	(Thousand)	171	163 9	97 0[2]	36 0[2]
5 Distribution of Surplus Land	(Acre)	82,198	1,34,458	2,05,928	46,299
6 Bonded Labour Rehabilitation	(Number)	19,353	13,472	13,687	2,385
7 Drinking Water Problem Solved (VLG)	(Number)	59,054	51,911	51,791	16,515
8. Community Health Centres	(Number)	212	264	297	—
9 Primary Health Centres	(Number)	2,168	2,749	3,580	42
10 Sub-Centres	(Number)	8,095	10,331	14,349	107
11 Immunization of Children	(Lakh)	138	166 6	192 1	67 2
12. F P. Sterilisation	(Thousand)	4,880	4,538 1	5,381 5	1,289 2

TABLE 14.3 (Continued)

1	2	3	4	5	6
13 Eq. Sterilisation	(Thousand)	1,879	2,111.0	2,390.5	1,221.3
14. ICDS Blocks Opel. (cum)3	(Number)	1,508	1,741	1,794	1,732
15. Anganwadis (cum)^3	(Thousand)	167	180.2	198.0	188.1
16 SC Families Assisted	–do–	2,516	2,327.7	2,204.1	722.2
17. ST Families Assisted	–d–	1,130	1,048.1	848.6	307.6
18. House Site Allotted	–do–	919	809.1	595.2	409.0
19. Construction Assistance	–do–	412	586.9	353.4	148.1
20 Indira Awaas Yojna for SC/ST	(Thousand)	162	126.3	120.4	40.5
21. EWS Houses Provided	–do–	120	139.8	260.8	26.0
22. LIG Houses	(Number)	50,993	50,679	55,302	24,842
23 Slum Improvement (Population)	(Thousand)	1,755	2,061.2	1,627.2	833.8
24. Tree Plantation	(Lakh)	35,510	40,436.6	34,285.0	23,837.9
25. Fair Price Shops	(Number)	9,926	7,663	1,438	778
26 Villages Electrified	–do–	21,327	19,234	14,271	4,275
27 Pumpsets Energised	(Thousand)	568	595.3	407.5	150.0
28. Improved Chullahs	–do–	1,376	1,675.0	1,684.0	400.9
29. Bio-gas Plants	–do–	162.0	140.8	126.9	33.1

TABLE 14.3 (Continued)

1	2	3	4	5	6
30. Irrigation Potential	(Thousand ha)	2,300	2,406	2,747	N.A
31. Dryland Farming (cum)[3]	(Number)	15,478	20,478	14,469	20,968
32. Pulses Production	(10 lakh tonne)	11 0	14.2 (P)	14 8	N.A
33 Oilseeds Production	–do–	12 0	18 2 (P)	16.6	N.A.
34. Elementary Education	(Lakh)	49 0	53.4	60 2	N A
35. Adult Literacy	–do–	92 0	107 9	129.5	N A
36 IREP	(Number)	43	N A	N A	N A

[1] NREP and RLEGP Programmes are merged into Jawahar Rozgar Yojna from 1989-90

[2] Provisional.

[3] Cumulative achievement for three years *i e*, 1982-83 to 1984-85

TABLE 14.4 INFRASTRUCTURE PERFORMANCE

(Percentage)

Sector	Annual growth (compound) during Seventh Plan	1985-86	1986-87	1987-88	1988-89 Target	1988-89 Achieved	1988-89 Actual Production
1 Power generation (Thermal, Hydel and Nuclear)	11.3	8.5	10.2	7.5	12.2	9.5	221.12 (BU)
2 Coal production	8.9	4.6	7.5	8.4	9.2	8.2	194.61 (MT)
3. Production at integrated steel plants							
(i) Hot metal	7.2	8.7	4.0	4.1	11.3	9.3	11.8 (MT)
(ii) Ingot steel	8.8	9.2	0.3	7.4	16.2	10.6	10.79 (MT)
(iii) Saleable steel	7.3	11.0	5.8	4.5	10.6	7.2	9.21 (MT)
4 Railway revenue earning goods traffic	5.9	9.4	7.4	4.5	4.4	3.7	301.06 (MT)
5. Cargo handled at major ports	6.6	12.0	4.0	7.6	4.2	9.4	146.38 (MT)
6. Telecommunications							
(i) Tel instruments production	—	11.4	5.8	3.3	9.4	22.0	947.55 (000 Nos)
(ii) Provision of new (net) tel. connections (monitored sector)	—	4.8	16.1	4.4	17.4	(−) 1.8	157.14 (000 Nos)
7. Cement production	10.2	9.7	10.4	8.0	10.1	11.8	44.17 (MT)
8. Fertiliser production							
(i) Nitrogen	10.8	10.5	25.0	1.1	17.0	22.7	6.7 (MT)
(ii) Phosphate	11.7	13.5	16.2	—	32.9	35.5	2.25 (MT)
9 Petroleum							
(i) Crude oil production	3.6	4.1	1.0	(−) 8.4	6.0	5.6	32.02 (MT)
(ii) Refinery throughput	6.6	20.7	6.5	4.5	2.4	2.2	48.8 (MT)

TABLE 14.5 TRENDS IN CAPACITY UTILISATION

Area/ Sector	1985-86 Actual	1986-87 Actual	1987-88 Actual	1988-89 Target	1988-89 Actual
1 POWER					
(Thermal PLF)					
Public					
Central	61.9	65.0	63.3	58.1	62.6
State	49.2	49.8	53.5	52.6	51.6
Private	57.5	61.2	67.6	67.5	63.2
All India	52.4	53.2	56.5	54.8	55.0
2. STEEL					
(Ingot steel)					
Public (SAIL)	69	55	60	75	68
Private (TISCO)	97	104	105	96	96
Overall	—	62	67	77	73
3. FERTILISER					
Nitrogen					
Public	53.4	65.4	66.1	70.1	71.1
Cooperative	83.0	93.3	100.2	86.6	110.6
Private	95.4	99.1	86.9	104.4	98.1
Total	70.3	79.1	77.6	82.5	85.2
Phosphate					
Public	59.7	71.6	65.6	83.1	86.3
Cooperative	113.9	110.7	93.6	105.2	95.9
Private	92.3	77.2	69.6	80.7	85.3
Total	88.9	80.1	71.5	86.1	86.9
4. CEMENT					
(Major Plants)					
Public					
CCI	70	66	59	75	66
Others	53	52	57	59	55
Total	59	57	58	67	60
Private	81	83	75	80	81
All India	79	79	72	75	76
(Including mini/white cement plants)					

TABLE 14.6 MEGA, MAJOR AND MEDIUM PROJECTS WITH ANTICIPATED INVESTMENT

(As on 1 January 1990)

	Number	Anticipated Investment (Rs crore)	Per cent of total anticipated investment
Mega projects costing Rs 1,000 crore and above	25	43,520	48
Major projects costing between Rs 100 crore and Rs 1,000 crore	107	36,896	41
Medium projects costing between Rs 20 crore and Rs 100 crore	199	10,417	11
TOTAL	331	90,833	100

15 Agriculture

ECONOMIC regeneration attempted in successive Five Year Plans has made agriculture a pride of national economy. This sector, today, provides livelihood to about 70 per cent of labour force, contributes nearly 35 per cent of net national product and accounts for a sizeable share of total value of country's exports. It supplies bulk of wage goods required by non-agricultural sector and raw material for a large section of industry.

Per capita net availability of foodgrains went up to a level of 478 grams per day in 1986 as compared to that of 395 grams in early fifties. In 1987, it was provisionally estimated at 465.5 grams per day. In terms of gross fertiliser consumption, India ranks fourth in the world after USA, USSR and China. The country has the largest area in the world under pulse crops. In the field of cotton, Inida is the first one to evolve a cotton hybrid. The country has made a major breakthrough in prawn seed production and pest culture technology.

Compound growth rate in agricultural production during the period 1949-50 to 1987-88 is 2.65 per cent per annum. Production of foodgrains increased significantly from 549.2 lakh tonnes in 1949-50 to 1,523.7 lakh tonnes in 1983-84. Cropping pattern is more diversified and cultivation of commercial crops has received new impetus in line with domestic demands and export requirements.

During post-green revolution period *i.e.*, 1967-68 to 1987-88, growth rate in agricultural production was assessed at around 2.60 per cent per annum. Production of foodgrains during this period increased from 9.51 crore tonnes to 14.34 crore tonnes. Cropping pattern has undergone perceptible changes and non-traditional crops like summer *moong*, soyabean, summer groundnut, sunflower, etc., are gradually gaining importance. In order to utilise scarce resources optimally, a short duration third crop is also being raised in some areas utilising residual moisture available from post-*kharif*/post-*rabi* cultivation.

Agricultural production went up by 20.75 per cent during 1988-89, it is expected to exceed production targets fixed for the year in several crops. Foodgrains production in 1989-90 is anticipated at over 1,700 lakh tonnes for the second year in succession. Production of oilseeds and cotton is also likely to show significant increase over low levels of last year.

Availability of edible oils including *vanaspati* has also increased significantly and its production in 1987 was 9,47,153 metric tonnes. The country has been able to sustain and improve availability of basic consumption articles and has thus raised the standard of living. Some key indicators of agricultural progress are shown in table 15.1

TABLE 15.1 SOME KEY INDICATORS OF AGRICULTURAL PROGRESS

	Item/Unit	1950-51	1960-61	1970-71	1980-81	1985-86	1986-87	1987-88	1988-89	1989-90	
										Target	Achievement
I.	FOODGRAINS PRODUCTION (lakh tonne)										
(i)	Rice	206	346	422	536	638	606	568	707	725	705-712
(ii)	Wheat	65	110	238	363	471	443	461	540	540	525-538
(iii)	Other Cereals	154	237	306	291	262	268	268	319	338	330-335
(iv)	Total Cereals	425	693	966	1,190	1,371	1,317	1,294	1,566	1,603	1,560-1585
(v)	Total Pulses	84	127	118	106	134	117	110	1,370	148	140-145
(vi)	Total Foodgrains	509	820	1,084	1,296	1,504	1,434	1,404	1,703	1,750	1,700-1,730
II	INPUTS										
(a)	Seed										
(i)	Production and Breeder Seeds (Thousand quintal)	—	—	—	5.27	23.64	28.60	22.55	32.87	33.15	—
(ii)	Production of Certified Seed (Lakh quintal)	—	—	—	21.56	44.84	56.51	53.42	65.06	67.65	—
(iii)	Distribution of Certified/ Quality seed (lakh quintal)	—	—	—	25.01	55.01	55.83	56.30	56.80	70.00	—
(b)	Fertiliser Consumption (NPK)										
(i)	Total (lakh tonne)	0.69	2.92	21.77	55.16	84.74	86.45	87.84	110.36	—	124.33[2]
(ii)	Per hectare	Neg	1.9	13.13	31.83	48.16	49.16	NA	NA	NA	NA
(c)	Area Under High-Yielding Varieties (lakh hectare)	—	18.9 (P)	153.8	430.7	554.2	561.8	541.0	601.1	668.3	638.4
(d)	Cooperative Credit disbursed (Rs crore)	24.23	214.35	678.79	2,126.31	3,683.13	3,915.18 (P)	4,556.86 (P)	4,944.40 (P)	5,779.00	5,506.88

NA: Not Available

(P). Provisional.

1. Anticipated achievement

2 Anticipated consumption

AGRICULTURAL ADMINISTRATION

Department of Agriculture and Cooperation is ensuring formulation and implementation of national policies and programmes aimded at achieving rapid agricultural growth through optimum utilisation of country's land, water, soil, plant animal, dairty and fishery resources. This is ensured by timely and adequate supply of inputs and services. The Department functions as the agency for maintenance of a wide range of statistical information for formulation of programmes and policers. It also ensures payment of remunerative returns to farmers by announcing procurement/ minimum support prices for important agricultural commodities from time to time for motivating farmers to put in their best.

HARVESTING SEASON

There are three main crop seasons, namely, kharif, rabi and summer. Major kharif crops are rice, *jawar, bajra,* maize, cotton, sugarcane, sesame and groundnut. Major rabi crops are wheat, jawar, barley, gram, linseed, rapeseed and mustard. Rice, maize and groundnut are grown in summer season also.

CROP INSURANCE

A comprehensive crop insurance scheme is proposed to be implemented throughout the country from kharif 1990 onwards. Steps taken for effective implementation of this scheme include: low rates of premia, subsidisation of premia beyond 50 per cent equally between states and Central government for small and marginal farmers and inclusion of foodgrains, pulses and oilseeds normally grown under rainfed conditions.

LAND UTILISATION

Land utilisation statistics are available for 92.7 per cent of total geographical area of 32.87 crore hectare. According to statistics available from states, area under forests had increased from 4.05 crore hectare in 1950-51 to 6.68 crore hectare in 1985-86. Net sown area increased from 11.9 crore hectare to 14.1 crore hectare during the same period. Broad cropping pattern indicates that though foodgrains have a preponderance in gross cropped area as compared to non-foodgrains, their relative share came down from 76.7 per cent during 1950-51 to 72.3 per cent during 1985-86

INPUTS

SEEDS

Seed is the basic agricultural input and its importance has been known both to farmers and Government. Over a span of four decades since indepence, India has transformed itself from a subsistence food importing country to one which is self-sufficient in foodgrains. Impressive gains have been attained in food production which increased from 510 lakh tonnes in 1950-51 to 1,700 lakh tonnes in 1989-90 (anticipated). Recognising seed as the primary input for increasing agricultural production, Central government established National Seeds Corporation (NSC) in 1963 and State Farms Corporation of India (SFCI) in 1969 to encourage production and distribution of certified seeds of various crops. Thirteen state seed corporations have also been established to supply improved seeds to farmers. It is their primary function to arrange production and distribution of certified seeds.

QUALITY CONTROL

The Seeds Act was passed by Parliament in 1966 to ensure that farmers get good quality seeds. Main quality control provisions are applied through certification system followed in the country. There is a Central seed testing laboratory and 90 state seed testing laboratories functioning in various states/union territories besides 19 seed certification agencies. In 1972, the Seeds Act, 1966 was amended to constitute a Central Seeds Certification Board. New varieties of seed are notified by the Central Seed Committee About 1,703 new varieties have been notified so far. This has been possible due to collective efforts of research scientists, seed technologists and progressive farmers. Seed has been declared an essential commodity and the Seed Control Order was issued in December 1983

Government has decided to denotify old and obsolete varieties of seeds to prevent cultivation of some varieties which have become highly susceptible to diseases and pests. It has also been decided to introduce time bound notification of varieties in future and notify them for 15 years in the first instance and then for five years at a time, if it is still found popular.

BREEDER SEED

Production of breeder seed is organised by Indian Council of Agricultural Research (ICAR) through concerned breeders and scientists on receipt of indents from state governments. National Seeds Corporation and State Farms Corporation of India also produce breeder seeds. Availability of breeder seed in the country had increased from 3,914.67 quintals in 1981-82 to 32,128 quintals in 1988-89. Breeder seed production of cereals, pulses, oilseeds, fodder and fibre crops during 1989-90 was likely to be of the order of 33,150 quintals.

There has, however, been a shortage of breeder seeds of oilseeds particularly groundnut and gram due to non-availability of nucleus material. All possible efforts are made to ensure adequate availability of breeder seeds, particularly of oilseeds and pulses. A system has also been introduced to monitor quality of breeder seeds.

FOUNDATION SEED

Foundation seed is the secondary stage of seed production cycle. National Seeds Corporation. State Farms Corporation of India and state seeds corporations have been assigned responsibility for production of foundation seed. To ensure adequate availability of foundation seed, Government is now allocating breeder seeds to private seed producers also for rapid multiplication of breeder seeds into foundation seeds. State seeds corporations produce foundation seed to meet local requirements while NSC and SFCI take care of requirements of national varieties Foundation seed production of cereals, pulses, oilseeds, fodder and fibre crops during 1989-90 was likely to be of the order of 6.21,326 quintals as against 4,63,861 quintals during 1988-89. Less production of foundation seed is mainly due to drought condition that prevailed during 1987-88.

CERTIFIED SEED

Stupendous growth in production and availability of seeds is main indicator of achievement in seeds sector. Distribution of certified/quality seeds showed a phenomenal increase from 14 lakh quintals in 1979-80 to 56.80 lakh quintals during 1988-89. Target for 1989-90 and 1990-91 was fixed at 70 lakh and 72 lakh quintals respectively Cropwise details are given in table 15.2

TABLE 15.2 DISTRIBUTION OF CERTIFIED/QUALITY SEEDS

(Quintal)

Crop	1984-85	1985-86	1986-87	1987-88	1988-89 (Anticipated)	1989-90 (Target)	1990-91 (Target)
Cereals	26,11,000	31,37,000	35,27,000	35,44,000	33,43,000	37,61 000	41,50,000
Pulses	2,09,000	2,32,000	3.39,000	3,46,000	3,73,000	6,22,000	6,00,000
Oilseeds	6,53,000	5,68,000	6,29,000	6,54,000	10,73,000	9,47,000	11,20,000
Fibres	1,41,000	2,35,000	1,72,000	1,54,000	1,44,000	3,81,000	2,11,000
Potato	12,25,000	13,22,000	9,06,000	9,16,000	7,57,000	13,31,000	11,20,000
Others	7 000	7,000	10,000	16,000	26,000	21,600	—
Total	48,46,000	55,01,000	55,83,000	56,30,000	56,80,000	70,00,000	72,01,000

BUFFFER STOCK OF SEEDS

In the event of unforeseen contigencies like floods, droughts, diseases, etc., seed has to be made available to farmers in affected areas at short notice. This necessitates maintenance of adequate quantities of buffer stocks. A scheme was accordingly launched in 1978 to meet such requirement which continued during Seventh Plan for keeping certain quantities of different seeds in reserve. NSC has been implementing this scheme on behalf of Government in the past except in 1984-85 when state seeds corporations were allowed to participate on trial basis. From 1987-88, buffer stock scheme has been modified to enable particpation of state governments through their respective state seeds corporations if they so desire on the basis of 50 per cent sharing of the cost with Centre. Under the revised scheme state seeds corporations have been allowed to maintain buffer stock of seeds of oilseeds, pulses and coarse grains. NSC is maintaining buffer stocks for meeting requirements of north-eastern states for paddy, maize, oilseeds and pulses.

TANSPORT SUBSIDY

About 70 to 80 per cent of seeds supplied to north-earstern states are meant for sowing in rabi season. As there are no air-conditioned storages/godowns in the region, seeds if sent early deteriorate due to heavy rains and humid climate. Seeds, therefore, can be transported only after the monsoon is over. This leaves very little time to supply and distribute seeds in north-eastern states for sowing in rabi. For this, Government from 1986-87 has initiated a Central sector scheme for transport subsidy on seeds to north-eastern states. This scheme purports to subsidise difference in cost of transportation of seeds by rail and road to these states. In case of Assam, 50 per cent of cost difference is subsidised for quantities of seeds moved. For other six states in this region differential cost is fully subsidised. This scheme is being implemented through NSC.

NATIONAL SEEDS PROJECT

In continuation of Phase-I and Phase II of National Seeds Project (NSP), now Phase III is being launched with World Band assistance.

NATIONAL SEEDS CORPORATION

Although seed production programme had been under the grip of severe drought during 1988-89. National Seeds Corporation produced about 5.33 lakh quintals certified seed, 0.40 lakh quintals foundation seed and 0.016 lakh quintals breeder seed. During 1989-90 target of breeder, foundation and certifed seed fixed by NSC was 0.04, 0.51 and 7.5 lakh quintals respectively.

STATE FARMS CORPORATION OF INDIA

State Farms Corporation of Inida is managing 13 large mechanised farms in different agro-climatic conditions of the country for production of breeder, foundation and certified seeds of cereals, pulses, oilseeds, fibre, vegetable and plantation and horticultural crops in a total area of 36,715 hectare. The Corporation has established 10 elite progeny orchards at different farms where nurseries of different horticulture products are propagated for distribution among farmers. It is also running a developmental farm in Mizoram where local farmers are trained in techniques of modern farming and handling of agricultural machinery. Various types of training in various modern techniques are conducted in agriculture and horticulture.

EXPORTS

Export of breeder and foundation seeds as also of certified seeds of pulses and oilseeds is banned. Request for supply of certified seeds of cereals is examined on merit and subject to domestic requirements before exports are allowed.

NEW POLICY ON SEED DEVELOPMENT

In order to boost agricultural productivity a new policy on seed development has been formulated which is effective from October 1988. The Policy has been evolved with special emphasis on: a) import of high quality seeds; b) time-bound programme to strengthen/modernise plant quarantine facilities; c)effective observance of procedure for quarantine/post-entry quarantine, and d) incentives to encourage domestic seed industry to make the country self-reliant in seed sector.

FERTILISERS

Fertiliser is the kingpin for increasing productivity in agriculture. For every tonne of fertiliser nutrient put in soil, there is an increase of seven to eight tonnes of foodgrains, other things remaining equal. It has been estimated that about 70 per cent of growth in agricultural production can be attributed to increased fertiliser use. Increase in consumption of fertilisers over a year would thus be a good indicator of country's performance in agriculture.

Total consumption went up from 69,000 tonnes of nutrients in 1950-51 to an estimated level of 110.36 lakh tonnes during 1988-89. Targetted consumption of fertilisers during 1989-90 was 121.30 lakh tonnes.

PROMOTION OF FERTILISER CONSUMPTION

To promote fertiliser use in rainfed areas, a 'National Project on Development of Fertiliser Use in Low Consumption Rainfed Areas' has been sanctioned in 64 identified districts.

Districts were selected on the basis of rainfall, gross irrigated area and existing level of fertiliser consumption. Main components of the scheme are: (i) opening of 200 additional retail outlets in each selected district by providing subsidy at the rate of Rs 1,200 for each retail outlet; (ii) organisation of 10 fertiliser block demonstrations in each selected district; (iii) organisation of 10 farmers' training programmes in each selected district; (iv) establishment of 10 soil testing laboratories in Rajasthan and five each in Madhya Pradesh and Maharashtra, and (v) establishment of one regional soil testing laboratory in north-eastern region.

To achieve targetted food production through promoting and spreading fertiliser consumption in low consumption areas, especially interior and inaccessible areas, Government had sanctioned a Central sector scheme during 1988-89 covering 14 states. The scheme has a component of opening 100 additional retail outlets in each selected district. A subsidy limited to Rs 1,200 per retail outlet is provided for advance stocking and transportation of material beyond block headquarters.

BIO-FERTILISERS

Decreasing reserves of non-renewable petroleum feed-stock all over the world and increasing cost of chemical fertilisers necessitate search for alternative renewable sources to supplement the ever increasing demand of chemical fertilisers and emphasis on integrated nutrient supply through conjunctive use of fertilisers, organic manures and bio-fertilisers. Scientists have proved that bio-fertilisers are effective, cheap and renewable source to supplement chemical fertilisers. Rhizobium inoculant has been found to be effective for pulses and legume oilseeds like soyabean, groundnut and blue-green-algae (BGA) for low-land paddy in our country.

Considering prospects of bio-fertilisers government is implementing a national project on development and use of bio-fertiliser for production. Under the project one national centre has been established at Ghaziabad, four regional bio-fertiliser development centres have also been established at Bhubaneshwar, Jabalpur, Bangalore and Hisar, while centres at Imphal and one in Maharashtra are proposed to be set up. During 1989-90, BGA centres produced about 200 tonnes of BGA culture. Under the national project, training and field demonstration programmes are also being organised by regional centres. Central assistance is being provided for setting up 20 rhizobium production units by state institutional agencies. Rhizobium production units are being established one each in Punjab, Gujarat, Rajasthan, Maharashtra and Orissa.

ORGANIC MANURES

Organic manures are essential for maintaining proper soil health besides contributing plant nutrients. The country has a potential of 650 lakh tonnes of rural and 160 lakh tonnes of urban organic wastes. Present utilisation is only to the extent of about 45 and 43 per cent respectively.

SOIL TESTING

Soil testing is an important tool to advise farmers on judicious, balanced and efficient use of fertilisers for the most economic returns to them. There are 454 soil testing laboratories (including 106 mobile laboratories) with analysing capacity of about 64.5 lakh soil samples per annum. Soil testing facilities have been provided in all important districts in most of states except 120 districts which are partly being served through mobile soil testing laboratories. For determination of micro-nutrient deficiency in soils, 25 sets of Atomic Absorption Spectro Photometer have been provided to state governments under Indo-UK bilateral programme. Besides a number of such equipment have been set up by state governments/agricultural universities. To expand soil testing facilities, state governments have been requested to establish 10 district soil testing laboratories in Rajasthan and five each in Maharashtra and Madhya Pradesh under National Project on Development of Fertiliser use in Low Consumption Rainfed Areas. One regional soil testing laboratory is also being set up in north-eastern region.

FERTILISER QUALITY CONTROL

Prices, trade and quality of fertilisers are regulated so that farmers get right quality of fertilisers at right time and at reasonable prices. Government has issued the Fertiliser (Control) Order 1985 under the Essential Commodities Act. This order includes: specification of fertilisers being sold in the country, methods of sampling and analysis and provision for appointment of enforcement agency for regulating trade and distribution of fertilisers. There are 43 fertiliser quality control laboratories in various states In addition, there is one Central Fertiliser Quality Control and Training Institute at Faridabad with its three regional centres at Bombay, Calcutta and Madras Total analysing capacity in the country is 87,400 fertiliser samples per annum. The Institute organises training programmes for state enforcement officers, analysts and fertiliser dealers, besides conducting analysis of samples from imported and indigenous sources To increase analysing capacity Central assistance has been provided for strengthening 29 fertiliser testing laboratories.

SOIL AND WATER CONSERVATION

Soil and water conservation measures have been accepted as one of the essential inputs for increasing agricultural output in the country. These programmes were first launched during First Plan. From the very beginning, emphasis has been on development of technology for problem identification, formulation and implementation of problem-oriented schemes, enactment of appropriate legislation and constitution of policy coordination bodies. While conceptual framework of soil and water conservation activities in the country has not changed, content of programmes has undergone considerable revision during successive Five Year Plans. Main objectives of schemes in operation are: to minimise process of erosion and land degradation; to restore degraded lands; to ensure availability of water and soil moisture; to create micro-level irrigation potential through water harvesting; to ensure rebuilding of internal fertility of soil through organic recycle particularly in resource-poor regions; to enlarge effective productive exploitation zone to deeper soil profile by adopting mixed and companion farming system; to increase aggregate bio-mass production; to generate employment through continuous adjustments in optimum land use planning, and to ensure collective security against recurring droughts and floods.

Programmes under state plan aim at conservation of soil and water mainly on agricultural lands with some components of land reclamation, soil and land use survey and raising of utility trees on private and common lands. Programmes sponsored by Soil and Water Conservation Division at national level in Department of Agriculture and Cooperation provide an overall perspective of problems like water and wind erosion, degradation through water-logging, salinity, ravines, torrents, shifting cultivation, coastal sands in addition to declining man-land ratio, increasing and competing demands for land, diversion of arable land, loss of productivity and favourable provision of water into production systems as well as information on problems and potential of various land uses. Major Central/Centrally-sponsored schemes have been directed towards checking premature siltation of multi-purpose reservoirs, mitigating flood hazard in productive plains, re-settling of shifting cultivators and restoring degraded lands.

CENTRALLY-SPONSORED SCHEMES

A Centrally-sponsored scheme of soil conservation in catchments of river valley projects launched during Third Plan with main objective to prevent premature siltation of multi-purpose reservoirs, is now being implemented in 27 catchments covering 17 states including Damodar Valley Corporation area. Soil and Water Conservation programme is being implemented in critically degraded watersheds ranging between 2,000 to 4,000 hectare in area. These are being delineated by All India Soil and Land Use Survey Organisation. The scheme has got inbuilt facilities for collecting silt load data along with various characteristics of watersheds under treatment. By 1988-89, an area of 23.04 lakh hectare was treated under the programme at the cost of Rs 279.47 crore. The scheme continued during Seventh Plan. In addition to concurrent appraisal by project implementing authorities and Soil and Water Conservation Division of Ministry of Agriculture, conservation work is also being evaluated by external agencies, *viz.*, Administrative Staff College of India, Hyderabad and Agricultural Finance Corporation, Bombay.

Another Centrally-sponsored scheme of integrated watershed management in catchments of flood-prone rivers was launched during Sixth Plan in eight flood-prone rivers of the Gangetic Basin covering seven states and one union territory. The scheme aims at enhancing ability of the catchment by absorbing larger quantity of rainwater, reducing erosion and consequent silt load in stream and river beds and thus helping to mitigate fury of floods in productive plains. An area of 4.21 lakh hectare was treated till the end of 1988-89 incurring an expenditure of Rs 78.18 crore. This scheme too was continued during Seventh Plan.

A scheme for reclamation and development of ravine areas had been launched in 1987-88 in the three dacoit-infested states of Madhya Pradesh, Uttar Pradesh and Rajasthan. Gujarat was added to the scheme from 1989-90. By 1988-89 an expenditure of Rs 20.50 crore had been incurred.

Major components of the ravine reclamation programmme are: peripheral bunding to halt any further ingress of ravines, table-land treatment in vicinity of upstream of peripheral bund, afforestation of medium and deep ravines for fuel, fodder, etc., and reclamation of shallow ravines with provisions of irrigation, wherever possible in order to rehabilitate degraded lands for cultivation/horticulture purposes. During 1989-90, outlay of the scheme was fixed at Rs 15.5 crore of which Rs 2 crore had been released. Major components of integrated watershed management programme are: protection of table-land, reclamation of shallow ravines, stabilisation for cultivation or horticultural plantation wherever irrigation has been made available and stabilisation of medium and deep ravines through afforestation for building fuel-fodder reserves.

For controlling shifting cultivation and permanently settling *Jhumia* (shifting cultivators); a pilot scheme was implemented in Arunachal Pradesh and Mizoram during 1986-87. In continuation, a large scale scheme to settle 25,000 Jhumia families in a period of five years was launched in nine states during 1987-88. The states include Arunachal Pradesh, Assam, Meghalaya, Manipur, Tripura, Nagaland, Mizoram, Orissa and Andhara Pradesh. A sum of Rs 20.51 crore was invested up to 1988-89 in different activities such as land development, irrigation, agriculture, horticulture, cottage industries, fisheries, social and fuel wood/forestry and minimum housing programmes for the purpose. Eventuallv one to two hectare of developed and economically yielding lands would be allotted to each family. During 1989-90, a sum of Rs. 16 crore was allocated and Rs 4.64 crore released under this scheme.

All India Soil and Land Use Survey Organisation with its seven regional/sub-regional centres throughout the country, has been continuing the work of catchment delineation, codification and fixation of *inter-se* priorities of watersheds for development. In addition through a joint programme with Space Application Centre/ISRO, the Organisation has completed catchment characterisation studies in both the catchments of the Ukai and the Giribata. This includes identification and assessment of soil erosion, land degradation and sediment yield problems *vis-a-vis* land use. The Organisation continued to provide support to determination of hydrologic soil groups, infiltration characteristics, building up of national natural resources data systems, etc.

By 1988-89, the Organisation had conducted detailed soil survey of over 96.05 lakh hectare, priority delineation survey of over 871.95 lakh hectare, special soil survey on 18.05 lakh hectare and sample soil survey in 8,065 sample blocks (each of 64 hectare) in different states. The Organisation has also participated in improving methodology by applying remote sensing technology and keeping abreast with present trend in the country and abroad. It also provides support to areas under coal mining activities and in preparation of appropriate rehabilitation programmes.

LAND USE AND CONSERVATION BOARD

National Land Use and Conservation Board (NLCB) is concerned primarily with national land use policy, perspective plan of conservation, management and development of land resources in the country, prevention of the indiscriminate diversion of good agricultural land for other uses and taking up measures for promoting scientific management of land use and conseervation. This board also coordinates work of state land use boards (SLUB) set up in different states and union territories.

AGRICULTURAL IMPLEMENTS

Agricultural machinery and implements play a very crucial role in increasing agricultural productivity. In fact, these constitute a basic input. On one hand, they help to get the best results out of other inputs like seeds, fertilisers, water and plant protection chemicals and on the other, they assist in increasing cropping intensity by reducing time for seeds-bed preparation and harvesting and threshing.

In 1983-84, thrust was given to programme of popularisation on improved animal-drawn agricultural implements and hand-tools. The programme envisaged providing a suitable technology to farmers in dryland area. Emphasis was laid on adoption and use of seed-cum-fertiliser drills.

The scheme for establishment of Farmers' Agro-Service Centre and popularisation of improved implements and hand-tools covers 500 dryland blocks of 10 states. Extensive demonstrations at block level are planned to make farmers convinced about suitability and profitability of using imporved implements and tools besides establishment of customs-hiring centres. Subsidy is provided to small and marginal farmers for purchasing identified implements and hand-tools.

A Central agricultural implements review and release-committee was also constituted in 1983 to coordinate research and development work in agricultural machinery and make available the latest improved agricultural tools and implements to farmers suiting to different agro-climatic zones. Till August 1988, 34 such tools and implements had been identified and released by the committee for popularising the same in the country.

A Central legislation, namely, the Dangerous Machines (Regulation) Act, 1983 has also been enacted to ensure supply of good quality power threshers to farmers conforming to standards of Bureau of Indian Standards. Provisions of the Act stipulate payment of compensation to operators in the event of injury/death while working on these machines. Haryana, Jammu and Kashmir and Union Territory of Delhi have already enforced the Act in their respective territories. Other states/union territories are in the process of implementation of the Act.

FARM MACHINERY INSTITUTES

Farm machinery training and testing institutes at Budni in Madhya Praesh, Hisar in Haryana and Garladinne in Anantapur district of Andhra Pradesh, impart on-the-job training in selection, operation and maintenance of farm machinery. The institutes are also engaged in testing of tractors and other agricultural machinery as a service to users and manufaturers. A proposal to set up two more such institutes in eastern and western regions of the country, is under consideration.

STATE AGRO-INDUSTRIES CORPORATIONS

Government promoted establishment of 19 state agro-industries corporations with the objective of streamlining system of input distribution and extending other agro-services to farmers. These corporations have significantly contributed towards agricultural development, improvement of agro-engineering services and promotion of agro-based industries during the last two decades. During 1989-90, total turnover of all corporations was anticipated to exceed Rs 600 crore. Corporations in Andhra Pradesh, Gujarat, Haryana, Karnataka, Kerala, Orissa, Madhya Pradesh, Maharashtra and Punjab were expected to earn profit during 1989-90. Best national productivity performance award for 1987-88 in agro-industries sector was won by Maharashtra state agro-industries corporation. A National convention of state agro-industries corporations was organised in July 1989 at Bangalore and its recommedations relating to four important sectors *i.e.*, provision of inputs, agro-engineering and customs-hiring, industrial policies for promotion of agro-based industries and growth strategy, have been referred to concerned agencies for initiating necessary action.

The Centrally-sponsored plan scheme on establishment of farmers agro-service centres and popularisation of improved agricultural implements and hand-tools was continued during 1989-90 in 500 dryland blocks of 10 state. By October 1989, 578 farmers' agro-service centres had been established, 52,080 demonstrations organised and 2,73,603 improved implements and hand-tools supplied to small, marginal and tribal farmers on subsidy.

PLANT PROTECTION

Policy of integrated post-management adopted by Government to contain the need of use of chemcial pesticides made further advances during the year. In order to avert crop losses due to pests and diseases, Central Directorate of Plant Protection, through its 32 central plant protection and surveillance stations maintained constant vigil by carrying out rapid roving surveys on major crops in different parts of the country. No major incidence of any pest and disease has occurred causing any significant damage to crops. Use of biological means helps reduce dependence on chemical methods of plant protection. About 72.5 crore predators and parasites were released during the year till October 1989 for controlling identified pests of important crops.

India was invaded by 10 exotic locust swarms across the border in Rajasthan. Locust swarms were timely detected by Locust Warning Organisation (LWO) and prompt control measures were organised and as such no locust infestation could escape to cross into cultivated areas and damage crops. Vigil against entry of exotic pests and diseases through international trade is being kept by 26 plant quarantine and fumigation stations at major international airports, sea ports and land frontiers. This is mainly done through screening of plants, etc.

As required under the Insecticides Act, 1968, Registration Committee considered applications received for grant of registration certificates. In all 1,039 registrations were granted by October 1989. In order to ensure quality pesticides to farmers, Central insecticides laboratory with its two branches at Hyderabad and Bombay and two regional pesticides testing laboratories at Kanpur and Chandigarh continues to augment efforts of states/UTs.

Central Plant Protection Training Institute, Hyderabad organised several long and short term courses of training in various aspects of plant protection technology.

Financial assistance was extended to farmers for undertaking plant protection measures simultaneously through the Centrally-sponsored scheme for control of pests and diseases of agricultural importance. Demand for pesticides has been estimated at about 85,000 mt (technical grade). Their availability remained satisfactory and major requirement of pesticides was met through indigenous production.

HIGH-YIELDING VARIETY PROGRAMME

This programme was started in 1966-67 as a major plank of agriculture strategy for increasing production of foodgrains in the country. Cropwise details are shown in table 15.3.

TABLE 15.3 AREA UNDER HIGH-YIELDING VARIETY PROGRAMME

(Lakh hectare)

Crop	1966-67	1985-86	1986-87	1987-88	1988-89	1989-90[1]	1990-91 (Target)
Paddy	8.9	234.7	240.3	222.5	254.1	276.5	294.3
Wheat	5.4	190.8	191.9	196.9	201.8	208.4	220.9
Jowar	1.9	60.8	55.0	60.6	61.1	73.8	76.2
Bajra	0.6	49.9	52.7	39.5	58.7	53.6	60.2
Maize	2.1	18.0	21.9	21.5	25.4	26.1	29.5
Total	18.9	554.2	561.8	541.0	601.1	638.4	681.1

1. Anticipated achievement

Main objectives of the programmes for increasing foodgrains production during Seventh Plan *inter-alia* included: (i) achieving self-sufficiency in foodgrains with the complete elimination of imports; (ii) imparting greater stability of foodgrains production; (iii) acceleration of growth rate in production of pulses and coarse grains, and (iv) protection of the interest both of farmers and consumers through price support and better distribution measures.

High-yielding variety programme is supported by the Central sector scheme of: (i) minikit programmes of rice, wheat, jowar, bajra, maize and ragi; (ii) maize demonstrations in tribal/backward areas, and (iii) state-level training of extension workers.

Minikit demonstration programme aims at popularising newly released varieties and getting the newly evolved varieties tested under field conditions. For this a large number of seed minikit containing 0.25 kg—5 kg seeds are distributed at a nominal cost to farmers.

The objective of maize demonstrations in backward and tribal areas is to increase the adoption of latest maize production technology, bring about an increase in the per unit area production of maize and improve the economic condition of backward and tribal farmers.

The programme of organising state-level training courses in improved production technology of various crops is held at agricultural universities and research institutes in collaboration with the concerned state agriculture department.

Rust-resistant varieties of wheat seed are supplied free of cost to farmers in hilly areas of north and south where wheat rust column builds up in the off season of summer and subsequently spreads to the plains in main crop season.

DRYLAND/RAINFED FARMING

Agricultural development in the country so far had been made only towards irrigated areas whereas vast dryland/rainfed areas which account for about 70 per cent of net cultivated area still remain neglected. Dryland farming is being practised in over 10.2 crore hectare out of 14.2 crore hectare of total cropped land in the country. Bulk of nutritionally vital crops like pulses and oilseeds comes from these areas. A large portion of industrially important crops like cotton and groundnut and staple food like jowar, bajra, maize, etc., are cultivated under rainfed conditions. Growth in production and productivity of important rainfed crops has been much slower resulting in a decrease of per capita availability of pulses and edible oils. As such, development of agriculture in India has now reached a stage when more reliance has to be placed on dryland/rainfed areas for national food security, correction of regional and nutritional imbalance and generation of widespread rural employment in hinterlands.

Crop production under rainfed conditions is marked by erratic and unpredictable rainfall pattern creating an atmosphere of high risk and insecurity. This stops dryland farmers from investing in inputs like seeds, fetilisers, plant protection measures, etc.

Development of watershed, which is geohydrological unit or a piece of land that drains at common points, has been accepted as a national approach and strategy for development of dryland areas. Government had suggested to states/union territories to make all-out efforts for boosting up of production levels in these areas.

Many states and union territories have identified about 13,472 micro-watersheds for comprehensive and systematic development covering an area of about 98,79,240 hectare. Each micro-watershed will cover an area of about 1,000 hectare and the programme includes management of rainwater, land development, use of improved seeds of drought-resistant varieties and fertilisers, plantation of forest and fruit trees, development of animal husbandry and allied activities.

A pilot project for watershed development in rainfed areas has been taken up with the assistance of World Bank. The project envisages development of identified watershed of about 25,000-30,000 hectare area each in Madhya Pradesh, Maharashtra, Andhra Pradesh and Karnataka. Another World Bank assisted on-going project in Uttar Pradesh is already in operation. The projects have been initiated at field level to lay basis of sound investment on large scale for. (a) reversing man-made ecological degradation that has been going on in lower foothills of the Himalayas for decades and (b) protecting and developing agricultural land which is presently subject to serious erosion and flooding.

A comprehensive project, namely, Kandi Watershed at a total cost of Rs 59.88 crore was in operation since 1980 in Punjab with the assistance of World Bank.

Basic objective of this project was to restore ecological balance in the Himalayan foothills (Kandi area, Punjab) with multi-disciplinary programmes of soil conservation, irrigation, horticulture, fishery, animal husbandry and research support, etc. During implementation, this project has been tilted towards irrigation component which is very costly and has been able to provide support for restoration of ecological balance. This project was completed on 31 March 1988.

On the basis of experience gained in this project as well as encouraging results obtained in on-going projects elsewhere in the country on watershed development for land stabilisation, and at the instance of World Bank, two new projects, namely, Integrated Watershed Development (Hills) in Jammu and Kashmir, Punjab, Himachal Pradesh and Haryana and Integrated Watershed Development (Plains) in Gujarat, Rajasthan, Orissa and Tamil Nadu have been negotiated for World Bank assistance and are likely to be initiated soon.

Two on-going schemes on propagation of water conservation/harvesting technology and popularisation of seed-cum-fertiliser drills, growing of improved varieties etc., for development of dryland areas taken up during 1983-84, have been merged in the new Centrally-sponsored scheme of National Watershed Development Programme for Rainfed Agriculture being implemented during Seventh Plan from 1986-87 to improve production and productivity of vast dryland/rainfed areas in the country. The programme is in operation in 16 states covering 99 districts. Its objectives are: (i) taking watershed as a basis to conserve and upgrade crop lands and waterlands as vital natural resources; (ii) to develop and demonstrate location-specific technologies for proper soil and moisture conservation measures and crop production stabilisation measures required under different agro-climatic conditions, and (iii) to augment fodder, fruit and fuel resources of village communities by use of appropriate alternate land use system. Main features of the scheme are: (i) land and moisture management for introduction of cropping system including dryland, horticulture, fodder production and farm forestry; (ii) contingency seed-stocking and supply of seedlings and grass seeds/slips; (iii) training: (iv) adaptive research and activity; (v) provision of survev equipment and fabrication of new tools, and (vi) preparation of field manual. Total cost of the scheme for the four years of Seventh Plan was Rs 239 crore of which Central government share was Rs 120 crore. The Programme was to cover 9.28 lakh hectare with annual target of 2.32 lakh hectare.

CROP PRODUCTION

Area, production and yield of principal crops of selected years is shown in table 15.4.

HORTICULTURE

Horticulture includes development of temperate, sub-tropical and tropical fruits, vegetables, ornamental and medicinal plants, coconut, oil palm, arecanut, spices, cashewnut and mushroom, etc. Horticulture is an important activity in agriculture to diversify agriculture, increase income per unit area, generate more employment opportunities, improve environment and ensure better nutritional status to population It provides commodities for exports.

Horticulture Division is supported by two boards–National Horticulture Board and Coconut Development Board and two directorates–Cashewnut Development Directorate at Cochin, and Cocoa, Arecanut and Spices Development Directorate at Calicut. Following Central sector and Centrally - sponsored schemes were under implementation in 1989-90· (a) Central sector schemes - (i) programmes of National Horticulture Board; (ii) establishment of elite progeny orchards. (iii) programmes of Coconut Development Board, (iv) development of oil palm plantations and oil palm processing in Kerala; (v) establishment of Central nurseries for pepper; (vi) scheme for cocoa development, and (vii) production of fruits and vegetables, specially vegetable seeds, and (b) Centrally-sponsored schemes-(i) improved technology for quality apple production; (ii) package programme on banana and pineapple in union territories; (iii) package programme on cashewnut development, and (iv) integrated programme for development of spices.

Inadequate supply of quality planting material of fruits has been a major bottleneck in development of horticulture. Therefore, National Horticulture Board has taken up a scheme for production and supply of quality planting material in 15 states. Twenty one fruit nurseries have been strengthened under this programme, besides equal number of important terminal markets inter-linked for collection and dissemination of data relating to daily rates and market trend/behaviour of fruits and vegetables of commercial importance. The Board has sanctioned a scheme to provide

TABLE 15.4 AREA, PRODUCTION AND YIELD OF PRINCIPAL CROPS—ALL INDIA

Crop		1950-51	1960-61	1970-71	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Rice	A	308 10	341 28	375 92	401.52	407 08	382.62	412 44	411 59	411.37	411.67	388.06	418.55
	P	205.76	345.74	422 25	536.31	532 48	471.16	600.97	583.36	638 25	605.57	568.62	706.67
	Y	668	1,013	1,123	1,336	1,308	1,231	1,457	1,417	1,552	1,471	1,465	1,686
Wheat	A	97 46	129.27	182 41	222 79	221 44	235.67	246 72	235.65	229 97	231.31	230.63	240.92
	P	64.62	109.97	238.32	363.13	374.52	427 94	454.76	440.69	470.52	443 23	461.69	539 95
	Y	663	851	1,307	1,630	1,691	1,816	1,843	1,870	2,048	1,916	2,002	2,241
Jowar	A	155.71	184 12	173 74	158 09	165.99	163.76	184 32	159 39	160 97	159 48	159.99	148.49
	P	54.95	98.14	81.05	104.31	120 62	107 53	119 19	114.02	101 97	91 85	121.96	1,05.98
	Y	353	533	466	660	727	657	725	715	633	576	762	708
Bajra	A	90.23	1,14 69	129 13	116.57	117.84	109.42	118 32	106 19	106 52	112 66	87.14	120.48
	P	25.95	32.83	80.29	53.43	55 37	51.31	77.26	60 47	36 64	45.14	32.98	77.87
	Y	288	286	622	458	470	469	653	569	344	401	378	646
Maize	A	31.59	44.07	58.52	60 05	59.35	57.20	58.59	58.00	57 97	59 23	55 61	59.46
	P	17.29	40 80	74.86	69.57	68 97	65 49	74 22	84.42	66 44	75.93	57 21	83.31
	Y	547	926	1,279	1,159	1,162	1,145	1,352	1,456	1,146	1,282	1,029	1,401
Total Cereals	A	782 30	920 18	1,017.82	1,042.10	1,052.95	1,022,62	1,076 21	1,039 36	1,036.05	1,040.39	984.25	1,050.35
	P	424.14	693 14	966.04	1,189.62	1,217.88	1,176 62	1,394 80	1,335 76	1,370 79	1,317.11	1,293.91	1,565.50
	Y	542	753	949	1,142	1,157	1,151	1,296	1,285	1,323	1,266	1,315	1,490
Gram	A	75.70	92 76	78 39	65 84	78 68	73 99	71.61	69 04	78.05	69.84	87.67	68.88
	P	36.51	62.50	51 99	43.28	46 42	52 90	47 51	45.62	57.88	45.32	36.26	50.62
	Y	482	674	663	657	590	715	663	661	742	649	629	735
Total Pulses	A	190.91	235 63	225.34	224.57	238 43	228 33	235.42	227.37	244 18	231.56	312.72	232.63
	P	84 11	127 04	118.18	106 27	115 07	118.57	128 94	119.53	133.61	117.07	109.62	137.03
	Y	441	539	524	473	483	519	548	526	547	506	515	589
Total Foodgrains	A	973.21	1.155 81	1,243 16	1,266 67	1,291 38	1,250.95	1,311 63	1,266 73	1,280 23	1,271.95	1,196.96	1,282.98
	P	508.25	820 18	1,084.22	1,295 89	1,332.95	1,295 19	1,523.74	1,455 39	1,504.40	1,434.18	1,403.54	1,702.53
	Y	522	710	872	1,023	1,032	1,035	1,162	1,149	1,175	1,128	1,173	1,327
Groundnut	A	44.94	64 63	73.26	68.01	74 29	72.15	75 39	71 65	71.25	69.82	68.44	84.30
	P	34.81	48.12	61.11	50 05	73.23	52.82	70.85	64 38	51.21	58.75	58.54	95.44
	Y	775	745	834	736	972	732	940	898	719	841	855	1,132

TABLE 15.4 (Continued)

Crop		1950-51	1960-61	1970-71	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Rapeseed and Mustard	A	20.71	28.83	33 23	41.13	43.99	38 27	38 74	39.87	39 80	37 19	46 19	48.65
	P	7.62	13 47	19.76	23.04	23.81	22 07	26 08	30.73	26.81	26.05	34 55	44.12
	Y	368	467	594	560	541	577	673	771	674	700	748	907
Total Nine Oilseeds	A	107.27[1]	137.70[1]	166.44	176.03	189.07	177 55	186.89	189 24	190.20	186.26	201.32	216.40
	P	51.58[1]	69 82[1]	96 30	93 72	120.80	99 95	126.92	129 46	108 33	112.70	126.55	178.88
	Y	481[1]	507[1]	579	532	639	563	679	684	570	605	629	827
Sugarcane	A	17.07	24 15	26.15	26.67	31 93	33 58	31 10	29 53	28 49	30 79	32 79	33.73
	P	570.51	1,100.01	1,263.68	1,542.48	1,863.58	1,895 06	1,740 76	1,703.19	1,706 48	1,860 89	1,967 37	2,046.26
	Y	33,422	45,549	48,322	57,844	53,859	56,441	55,978	57,873	59,898	60,444	60,006	60,073
Cotton (Lint)[2]	A	58.82	76.10	76 05	78 23	80.57	78 71	77 21	73 82	75.33	69 48	64.59	72.97
	P	30.44	56.04	47 63	70.10	78.84	75.34	63 87	85.07	87 28	69 05	63 82	86.56
	Y	88	125	106	152	166	163	141	196	197	169	168	202
Jute[3]	A	5.71	6.29	7 49	9 41	8 26	7 34	7 60	8 33	11 46	8 03	6.97	6 92
	P	33.09	41 34	49.38	65.08	67 88	59 46	63 25	65.31	108.86	73 53	57.93	66.25
	Y	1,043	1,183	1,186	1,245	1,480	1,458	1,498	1,411	1.710	1,649	1,496	1,725
Mesta[3]	A	NA	2 74	3.31	3.59	3 24	2 86	2 93	2 96	3 48	2 65	2 61	2.29
	P	NA	11 29	12.55	16 52	15 82	12 25	13 99	12 56	17 61	12.73	9.85	10.78
	Y	NA	742	684	828	861	771	858	764	910	865	680	849

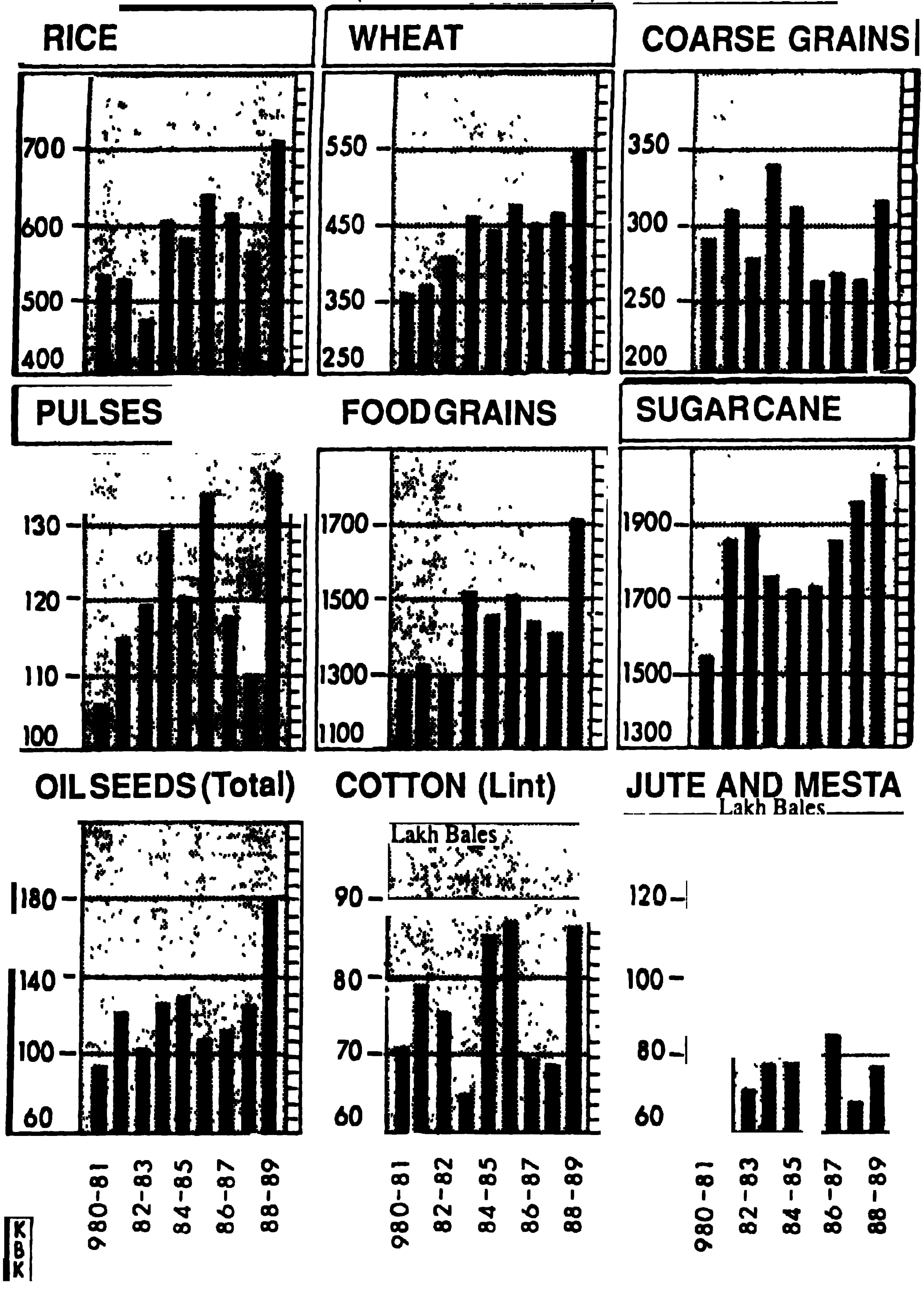
1. Five major oilseeds *viz*, groundnut, rapeseed, mustard, castorseed, linseed and sesamum from 1949-50 to 1969-70
2. Production in lakh bales of 170 kg each
3. Production in lakh bales of 130 kg each

A-Area lakh hectare, P-Production in lakh tonnes, Y-Yield in kg per hectare.

Year relates to crop year July-June

AGRICULTURAL PRODUCTION

(IN LAKH TONNES)



financial assistance to agro-horticultural corporations and other apex cooperative organisations in marketing and processing of fruits and vegetables. Six hundred vending machines were targetted to be supplied under this programme. It has taken up a national project on post-harvest management which envisages movement of produce in recyclable plastic crates ensuring supply of fruits and vegetables at optimal freshness The Board is also providing financial assistance to state governments under the programme and techno-economic surveys on different aspects of horticulture industry. Eight hundred and fifty farmers were targetted to be trained during 1988-89 for transfer of technology. A pilot project for storage of potatoes through passive evaporative cool stores is being implemented for reducing post-harvest losses Sixty passive evaporative cool stores were targetted under this programme.

For increasing production of fruits, a Centrally-sponsored scheme on package programme on banana in Goa and package programme on pineapple in Arunachal Pradesh and the Andaman and Nicobar Islands, is in operation.

A Central sector scheme for establishment of elite progeny orchards is being implemented at ten farms of SFCI. Under it elite progeny nurseries have been set up for production and supply of high-yielding planting material of proven quality and demonstration of improved horticultural practices

The Indo-Bulgarian Joint Commission for Economic, Scientific and Technical Cooperation signed an agreement in 1986 in Sofia under which Bulgarian side agreed to render technical assistance and support for setting up demonstrations in India on apple production with Bulgarian technology. An apple demonstration farm of 50 hectare has been set up in Jammu and Kashmir with the assistance of Bulgaria. At this farm, 25 hectare will be covered under red delicious spur variety of apple imported from Bulgaria. In the remaining 25 hectare, indigenous *Ambri* variety will be grafted on root stock imported from Bulgaria.

An Indo-Italian project on temperate climate fruit crops is being implemented since 1984 in Jammu and Kashmir, Himachal Pradesh and Uttar Pradesh. Temperate fruits covered under the project are olive hazelnut, almond and walnut. First phase of the project was completed in August 1987. Components of the project include. (1) planting of fruit trees of selected species and varieties including their mother plants as well as laying out of demonstration plots; (ii) setting up of fruit nurseries for production of planting material for distribution among farmers; (iii) training of personnel; (iv) establishment of small agro-industrial units for processing of fruits (extraction of oil from olive fruit, shelling of hazelnut and almond, drying of fruits, etc.), and (v) marketing including storage, transport and packing. Under the project olive plants and other fruit varieties received from Italy were planted in these three project states. Agricultural machinery, laboratory equipment and processing equipment were also imported from Italy as gift and distributed to these states. As the assessment of the performance of varieties introduced from Italy will be possible only in the next few years. Italian authorities have agreed to continue phase II of the project up to 1992.

Government is implementing a Centrally-sponsored scheme on package programme on cashewnut development. The programme includes intensive pest management, laying out of demonstration plots in *ryots* holdings, improvement of cashew by *in situ* vegetative propagation, area expansion and establishment of clonal orchards.

Coconut Development Board is implementing various projects for increasing production and productivity of coconut in the country. These schemes include expansion of area, production of quality coconut seedling, establishment of hybrid seed gardens, promotion of primary processing and marketing activities, assistance for irrigation facilities and plantation of coconut on canal embankments in Orissa and *khas* land in Tripura. During 1988-89, the Board had procured 5.5 lakh quality seednuts from disease-free locations and supplied to various states/union territories. It was proposed to cover 2,000 hectare during 1989-90 for expansion of area under coconut plantations. Three lakh seedlings planted on canal embankments in Orissa in the previous years were being maintained during 1989-90. Six thousand and five hundred seedlings are planted and maintained on canal embankments in Karnataka. An area of 50 hectare planted with coconut in *khas* land in Tripura is also being maintained.

Government and World Bank have jointly set up a project preparation team for development of horticulture in noth-west hill region. The project preparation was started in November 1988. The project proposed for development of temperate horticulture will include apple and other temperate fruits, vegetables and flowers. The programme aims at improving productivity and quality, regulating supply to market, increasing sufficient number of market systems and diversification of crops specially in marginal apple production areas. Project components include strengthening of extension services, development of regional technical resources centres, production of quality planting material, development and adoption of post-harvest facilities, training of extension workers and farmers, etc.

ANIMAL HUSBANDRY

Animal husbandry in India is an essential and important component of agriculture and plays a significant role in rural economy by providing gainful employment particularly to small/marginal farmers and agricultural labourers, thereby raising their economic status. It also provides essential animal proteins for human diet through milk, meat and eggs, fibres and animal excrement which is used as a source of energy through direct burning/bio-gas as a farmyard manure. Thus programmes of animal husbandry are of special significance for uplifting the rural poor. According to provisional estimates of 1986-87 gross value of output from this sector at current prices was about Rs 24,193 crore, being twenty five per cent of total agricultural output (including animal husbandry) of Rs 96,700 crore. This excludes contribution of animal draught power.

Development of animal husbandry is, being envisaged as an integral part of diversified agriculture. India's livestock resources have considerable traits of adaptability to withstand environmental stresss and inadequate levels of nutrition and management. India is blessed with a large livestock population of 19.2 crore cattle, 7.0 crore buffaloes, 9.5 crore goats, 4.9 crore sheep and 21 crore poultry birds as per 1982 livestock census. This number has increased significantly by now. Such a large livestock population of the country clearly presents a challenge to retain existing traits of adaptability and also introduce desired traits of productivity by applications of modern science and technology. Rigorous efforts are therefore being made to improve vast population of livestock by providing basic infrastructure and adopting latest levels of technology.

CATTLE/BUFFALO DEVELOPMENT

India possesses 26 good breeds of tropical cattle and six breeds of buffaloes. India's cattle are wellknown in the world for their quality of hardiness, endurance and resistance to tropical animal disease especially tick-born protozon infections. Because of these qualities Indian cattle and buffaloes are sought after internationally. Recognising importance of cattle in rural economy and their contribution to national income both Central and state governments are devoting considerable attention for their development. Important state sector schemes initiated for development of cattle and buffaloes are key village blocks (KVBs) and intensive cattle development projects (ICDPs). These schemes aim at allround development of cattle and attend to all aspects of cattle development in a planned coordinated manner. Under these and other schemes about 34,000 artificial insemination (AI) centres have been set up to provide input and extension support in rural areas. Number of AIs with exotic bull semen increased from 84 lakh during 1984-85 to about 180 lakh during the year.

Seven Central cattle breeding farms at Suratgarh (Rajasthan), Dhamrod (Gujarat), Almadi (Tamil Nadu), Chiplima (Orissa), Semiliguada (Orissa), Andeshnagar (UP) and Hesserghatta (Karnataka) are engaged in scientific cattle breeding programme and progenv testing of selected breeds of indigenous as well as exotic cattle and buffaloes. These farms were expected to distribute about 2,600 bulls/bull calves of superior genetic make-up for breeding by end of Seventh Plan.

A massive programme for genetic improvement of cattle and buffaloes using frozen semen technique for efficient insemination has been taken up in different states. Centre is supplementing efforts of state governments through a Central sector scheme on extension of frozen semen technology for cattle and buffalo development. During Sixth Plan, 14 states were provided financial assistance to modernise 14 bull stations and to set up 38 frozen semen (FS) banks and 4,749 field AI centres. During Seventh Plan, Central assistance had also been provided to 13 states to strengthen three bull stations, 13 FS banks, 2,000 field AI centres and eight training centres.

Production of proven/superior cross-bred bulls is an essential activity in cattle breeding programme. A Central sector scheme for production of proven bulls by progeny testing under field conditions has also been taken up in some states. During Sixth Plan, 173 cross-bred bulls were test-mated under the programme in Kerala, Punjab and Assam. In Seventh Plan, the programme was in operation in Andhra Pradesh, Assam, Orissa, Kerala and Maharashtra. Three hundred bulls were expected to be test-mated by 1989-90. This will help in identifying proven bulls for use in cross breeding programme for further improvement of milk production of cross-bred cows.

Mid-term review of Sixth Plan laid emphasis on improvement of well recognised indigenous breeds of cattle and buffaloes. Accordingly, a Centrally-sponsored scheme envisaging strengthening of infrastructure facilities at existing state cattle/buffalo breeding farms for housing the animals, production of fodder, development of irrigation facilities and purchase of animals was initiated during 1984-85 and the same was continued in Seventh Plan. Under it financial assistance was provided to state governments for development of 17 state cattle breeding farms of well recognised indigenous breeds such as *Khillar, Gaolao, Deoni, Nagore, Kankrej, Hallıker, Sahiwal, Hariana, Malvi* breeds of cattle and *Murrah* breeds of buffaloes

One of the latest technologies to be introduced in cattle and buffalo development is embryo transfer technique This is expected to serve as an effective tool for increasing producitivty of cattle and buffaloes through multiplication of superior breeding stock specially for production of breeding bulls and bull mothers.

A scheme of special livestock breeding programme (SLBP) with objectives of : (a) involving small/marginal farmers and agricultural labourers in livestock production and (b) generating additional employment and income, is in operation in selected districts of the country. SLBP consists of two components, namely, (i) rearing of calves (ROC) and (ii) setting up of sheep, poulty and piggery, etc , production units. The component - rearing of calves includes rearing of cross-bred females, cross-bred males of cattle and also of buffalo females. The programme has a mix of subsidy and loan arranged through financial institutions. During Seventh Plan a number of modifications had been made in the programme to make it more effective and offer wider choices of vocation to farmers. In 1989-90 nearly 0.90 lakh families were expected to be assisted. An important ingredient of farmers' induction and training has also been introduced. Expenditure on the programme is shared on 50:50 basis between Central and state governments and cent per cent borne by Government in case of union territories.

As a result of implementation of these schemes significant progress has been made in the field of cattle and buffalo development. Consequently country's milk production increased from 302 lakh tonnes in 1979-80 to 515 lakh tonnes (anticipated) in 1989-90.

POULTRY DEVELOPMENT

Poultry is one of the important components of farmers' economy It provides additional income and job opportunities to a large number of rural population. Besides poultry is the most efficient convertor of foodstuffs into human food of high nutritional value in shortest time. Due to continuous and concerted efforts of both public and private sectors, there has been considerable increase in both egg and poultry meat production. Annual egg production which was 183 crore in 1950-51 was expected to have increased to about 1,960 crore in 1988-89 Broiler production which was virtually non-existent in 1961 increased to about seven crore birds during 1985-86, touched the level of eleven crore birds during 1988-89 and was expected to exceed 13 crore in 1989-90. Central government has initiated some important programmes/projects to boost egg/broiler production.

Central poultry breeding farms at Bombay, Bhubaneshwar, Hesserghatta and Chandigarh are engaged in scientific poultry breeding programme and have developed high egg production hybrid and fast growing broiler strains. These farms are supplying parent-stock chicks

Central Duck Breeding Farm, Hesserghatta is catering to requirements of high egg production *Khaki* Cambell breeding stock ducklings, of various states/union territories.

Three random sample poultry performance testing centres at Bangalore, Bombay and Bhubaneshwar conduct egg laying and broiler tests and provide useful information to poultry farmers, hatcheries and breeding organisations about performance of various participating layer and broiler stocks in the country (both from public/private sector organisations) The fourth test unit near Gurgaon (Haryana) has also become operational and is conducting broiler tests as per schedule

Central poultry training institute at Hesserghatta is imparting short term practical courses in different disciplines of poultry to officials of state governments/ union territory administrations, agricultural universities, research institutes and private sector organisations.

Regional feed analytical laboratories at Chandigarh and Bhubaneshwar provide feed analysis facilities to farmers, public and private sector organisations Laboratory at Bombay also became functional during 1989-90.

National Agricultural Cooperative Marketing Federation (NAFED) has been entrusted with marketing of eggs and poultry at national and regional levels.

To popularise poultry farming and ensure the remunerative prices to poultry farmers, Central government had approved some new schemes, *viz.*, (i) Central scheme for establishment at backyard poultry production units for benefit of rural poor and providing employment opportunities to women in backward, tribal and other remote areas; (ii) Central sector scheme to subsidise differential rate of interest on capital investments in cold storages, and (iii) a Centrally-sponsored scheme to provide financial assistance to national and state level poultry corporations/federations and other similar organisations to streamline marketing of eggs and poultry and supply of feed during Seventh Plan period.

MEAT PRODUCTION

The country produces around ten lakh tonnes of meat from various species of livestock. Meat and meat products worth Rs 117 crore were exported in 1988-89. Supply of clear and wholesome meat is only possible through modernisation/improvement of abattoirs. Three modern abattoirs have been established. There is a proposal to establish the same in Calcutta, Sikkim, Srinagar, Delhi, Hyderabad and Bangalore.

PIG DEVELOPMENT

There are more than hundred lakh pigs in the country of which approximately ten per cent are graded and of exotic variety. Pig is one of the most efficient feed converting and fast weight gaining animal, but indigenous pigs are poor in production performance compared to exotic ones. In order to improve economic traits of indigenous swine herds, cross-breeding and upgrading programmes with use of exotic pigs have been undertaken. There are 99 pig breeding/multiplication centres functioning which also maintain exotic cross-bred varieties. One hundred and forty piggery development blocks have also been set up as demand of exotic cross-bred piglets is on the increase.

Keeping in view demand for quality pork and pork products and also to help primary producers to sell their produce at remunerative prices, regional bacon factories are operating in Andhra Pradesh, Bihar, Punjab, Uttar Pradesh, West Bengal, Kerala, Maharashtra and Rajasthan. There is a proposal to gear up capacity utilisation of bacon factories of Bihar, Punjab and West Bengal.

SHEEP DEVELOPMENT

Sheep population in the country is 488 lakh as per livestock census of 1982. Average wool yield of sheep is less than one kg per head per year. Total wool production in the country during 1988-89 was expected to reach a level of about 430 lakh kg. Of this only about 40 lakh kg of wool produced is of apparel quality (suitable for clothing) and the remaining quantities of wool are used for production of quality carpets, general purpose carpets, *namdas*, blankets, etc. Total requirement of wool in the country is over 550 lakh kg. Gap between production and requirement is met through import of wool every year. Total availability of wool for carpet manufacture is estimated at around two hundred lakh kg which is sufficient to meet present requirement of carpet industry.

Principal objective of sheep development programme is to make the country self-sufficient in wool production *vis-a-vis* meat production through scientific breeding and raise the status of sheep breeders/wool growers. Strategy for sheep and wool development encompasses production both for meeting requirement of apparel wool and carpet wool for export purposes. Breeding policy envisages selective breeding of important carpet wool breeds and cross-breeding involving suitable exotic breeds with coarse carpet type. India is importing large number of exotic fine wool breed sheep from USA and Australia in a pahsed manner. Nearly, 12,0000 fine wool sheep had been imported from USA/Australia/USSR during the last six years for increasing production of quality wool for manufacture of apparel and carpets. These measures have shown good results. Total raw wool production which was only 275 lakh kg in 1951 was expected to reach a level of about 430 lakh kg during 1989-90.

A Central sheep breeding farm with exotic breeds has been established at Hisar. At present it is having a breeding programme with pure exotic breeds as well cross breeding for production of superior rams. It has distributed over 8,500 exotic-bred rams to different states since its establishment. The farm also trains officers and shepherds from different states in modern sheep management. Apart from this a few state sheep breeding farms are being strengthened under a Centrally-sponsored scheme for production of more rams. In addition wool boards/sheep corporations have been established by different state governments to improve marketing and grading system of wool in the country and eliminate middlemen in its trade.

FEED AND FODDER

For improvement of our vast livestock resources through proper scientific methods, availability of nutritious feed and fodder is essentail. To make available scientific fodder production technology, seven regional stations have been established in different agro-climatic zones, *i.e.*, at Hisar (Haryana), Kalyani (West Bengal), Gandhinagar (Gujarat), Almadi (Tamil Nadu), Hyderabad (Andhra Pradesh), Suratgarh (Rajasthan) and Shehama (Jammu and Kashmir). These are also engaged in production and propagation of certified quality fodder seeds. During 1989-90, these stations were expected to produce 26,000 quintal seeds of different fodder varieties and conduct about 12,000 demonstrations.

Many sites are used for demonstration and training of farmers from nearby villages. A Central fodder seed production farm is in operation at Hesserghatta (Karnataka) since 1980 and another fodder seed farm has been started by State Farms Corporation of India (SFCI) at Barpeta (Assam). Regional stations and Central fodder seed production farm, Hesserghatta were expected to produce nearly 3,500 quintal seeds of high-yielding fodder varieties, pasture grasses and legumes during 1989-90.

A Central project of fodder minikit demonstration is under implementation for popularising high-yielding fodder varieties on a large scale. Over 70,000 kits are distributed annually. Work on search for right type of strains of different leguminous species has been intensified for hardy and drought-resistant pasture legume seeds in revegetation of vast culturable and unculturable wastes. Over 150 cultivators of different species of stylosanthes, macroptilium and deshmanthus have been obtained from Australia for testing in India at different sites. Some strains are already showing promise Multiplication of seed of various species of stylosanthes, such as *S.scabra*, *S.hamata*, *S.viscosa*, etc , is being continued

LIVESTOCK HEALTH

About 17,720 veterinary hospitals and dispensaries and another 21,612 stockman/veterinary aid centres are functioning all over the country. Routine prophylactic and control measures against common diseases and ailments are being attended to by these institutions. For producing indigenous veterinary preventive vaccines necessary to undertake disease control operations, 24 vaccine production centres have been established in public and private sectors in various parts of the country. Together they produce around eighty crore doses of vaccine, antigens, etc., for prevention of animal diseases. A National veterinary biological product quality control centre is being established by Ministry of Agriculture so as to assure standards and quality of various indigenously produced veterinary vaccines and diagnostic reagents. Once established, this will help in exporting our products to other needy countries also. About 250 disease investigation laboratories are functioning in state sector.

A national programme for eradicating rinderpest is being implemented throughout the country. As a result, death toll due to this disease came down from 196 per lakh per year during mid-50s to four per lakh in Seventh Plan period. During current Plan period efforts were mounted to get the disease finally eradicated by pursuing policies specific to different risk areas. In this connection a bilateral project Operation Rinderpest Zero to be funded by EEC, was signed in November 1989. The project will be implemented in three phases.

So far as veterinary manpower is concerned, India has nearly a strength of about 28,000 veterinarians and 57,000 supporting personnel livestock assistants. Each year about 1,300 graduate from existing 28 veterinary colleges besides about 2,000 stock assistants/compounders.

DAIRY DEVELOPMENT

Dairying like all agricultural enterprises in India rests on individual units of small size. Most farmers belong to small or marginal category, own two or three heads of cattle and less than two hectare of land. For them dairying is an additional income generation activity. These farmers like all agricultural producers are scattered all over the country and vulnerable to a variety of forces peculiar to dairy industry. They depend upon dairying as a subsidiary occupation to supplement their income and they form the core of milk producing sector. Milk production in the country increased from a level of 225 lakh tonnes in 1971-72 to an anticipated level of 575 lakh tonnes in 1989-90 Need for an assured market through an organisation of such producers is, therefore, crucial to dairying in rural areas.

OPERATION FLOOD

Although dairying is essentially a state subject, Department of Agriculture and Cooperation has taken up a project called 'Operation Flood' which aims at providing remunerative price to rural milk producers by linking producing centres with urban consuming areas, thereby helping in enhancement of milk production and ensuring supply of quality milk to consumers.

Operation Flood is an integrated programme for dairy development based on *Anand* model cooperatives Main objective of operation flood is to build a viable and self-sustaining national dairy industry on cooperative lines. Entire process of development in milk production, procurement, processing, marketing and production enhancement are to be brought about through organisations owned and managed by farmers themselves. First phase of the programme, Operation Flood I (OF-I) initiated in July 1970 continued up to March 1981. OF-II was implemented from April 1981 to March 1985. OF-III is currently in operation

Up to June 1989 about 65 61 lakh families had been brought under cooperative ambit through network of about 60,000 dairy cooperative societies spread over 173 milksheds in the country These societies on an average procured about eighty lakh kg of milk per day (LKPD) during 1989-90. Peak average daily milk procurement during January 1989 was 100.6 lakh kg per day.

Important achievement of operation flood programme is emergence of a national milk grid which helps off-set regional and seasonal imbalances in milk collection and distribution.

Facilities for training of manpower and farmers from various implementing agencies of Operation Flood have been created at National Dairy Dvelopment Board, Anand; Mansingh Institute of Training, Mehsana, Galbabhai Desai Training Institute, Palanpur (Banaskantha), and three regional demonstration and training centres at Siliguri in eastern region, Jalandhar in northern region and Erode in southern region. Besides training in artificial insemination, first-aid, etc., is being given to staff of dairy cooperative societies at national level training centres.

TECHNOLOGY MISSION ON DAIRY DEVELOPMENT

Government has launched a Technology Mission on Dairy Development as there was need for technological interventions to raise overall dairy productivity while exploiting further the potential to use dairy farming as a means to accelerate pace of increasing rural employment and income.

The Mission has started work for consolidating gains of Operation Flood and a speedier replication of Anand model of cooperatives in nearly sixty per cent area of the country. Task of bringing about effective coordination among various Government programmes and agencies for optimal use of resources, is now underway.

The Mission has also commenced work in coordinating efforts of various research institutions in the country such as ICAR, Council of Scientific and Industrial Research, National Dairy Development Board, Agricultural Universities, other public institutions, research bodies and state copperative milk federations and unions. Standardisation of various techniques developed at research institutes making them capable of efficient and quick transfer to rural dairy farmers, will be an important objective.

FISHERIES

Fisheries play an important role in the economy of India. It helps in augmenting food supply, generating employment, raising nutritional level and earning foreign exchange. Fisheries Division of Department of Agriculture has been undertaking directly or through state governments various production-oriented programmes, input supply programmes and infrastructure development programmes besides formulating/initiating appropriate policies to increase production and productivity in fisheries sector. The Division has also established a number of institutes for development of fisheries. Main objectives of fisheries development programme are: (i) enhancing production and productivity of fishermen, fish farmers and fishing industry; (ii) increasing food production and thereby raising nutritional standard of people; (iii) earning of foreign exchange from export of marine products; (iv) improving socio-economic conditions of traditional fishermen; (v) employment generation, and (vi) conservation of depleted species of fish.

Strategies followed by the Division for achieving these objectives are: assisting fishermen, fish farmers and fishing industry by undertaking various fisheries development programmes direct or through state governments and initiating appropriate policy measures for encouraging coastal fishing, deep sea fishing and inland fish farming.

FISH PRODUCTION

Fish production has increased by four times during the last 39 years. Growth of overall fish production of selected years is shown in table 15.5.

TABLE 15.5 PRODUCTION OF FISH

(Lakh tonne)

Year	Marine	Inland	Total
1950-51	5.34	2.18	7.52
1960-61	8.80	2.80	11.60
1970-71	10.86	6.70	17.56
1980-81	15.55	8.87	24.42
1984-85	16.98	11.03	28.01
1985-86	17.16	11.60	28.76
1986-87	17.13	12.29	29.42
1987-88	16.58	13.01	29.59
1988-89	18.17	13.35	31.52
1989-90[1]	18.50	14.00	32.50

[1] Target.

DEVELOPMENT OF INLAND FISHERIES

In recognition of the important role of inland fisheries in overall production of fish, Government has been implementing two important programmes in inland sector since Fifth/Sixth Plans. These are Fish Farmers' Development Agencies (FFDA) and National programme for fish seed development. A network of 313 FFDAs is functioning now. Under National programme for fish seed production, 40 fish seed hatcheries have been commissioned. On fish seed production front marked improvement occurred as fish seed production doubled from 500 crore fry in 1983-84 to 1,000 crore fry in 1988-89. The production was estimated to be about 1,200 crore fry in 1989-90. A new programme was taken up during 1986-87 for utilisation of organic waste for aquaculture.

DEVELOPMENT OF MARINE FISHERIES

Apart from four major fishing harbours, *viz.*, Cochin, Madras, Vishakhapatnam and Roychowk, 18 minor fishing harbours and 93 fish landing centres were constructed to provide landing and berthing facilities to fishing craft. A major fishing harbour is under construction at Sasson Dock in Bombay. In Seventh Plan, it was targetted to build up a fleet of 300-500 deep sea fishing vessels (20 metre and above) to exploit vast marine fishery potential of our Exclusive Economic Zone (EEZ). By October 1989, number of deep sea fishing vessels operating in India's EEZ was 225. Of these 165 are owned by Indian fishing companies including state fisheries corporations and the remaining 60 are chartered foreign fishing vessels.

Government is providing subsidy to poor fishermen for motorising their traditional craft which reduces physical strain on the part of fishermen, increases area and frequency of operation with consequent increase in catch and earning of fishermen. During Seventh Plan, target was to motorise 5,000 craft. A total of about 4,500 craft has been motorised under the scheme so far. Subsidy for motorisation is 50 per cent of cost shared between Centre and state/union territory governments.

Improved beach landing craft made of fibre glass and other light materials, is supplied to a group of fishermen Advantage of this kind of craft is that it can be slipped and landed without much effort. For its operation it is not necessary to have fish landing centres During Seventh Plan, it was proposed to introduce 202 beach landing craft (BLC). Subsidy for this scheme is 50 per cent. By October 1989, 196 craft were sanctioned

BRACKISH WATER AQUACULTURE

Objective of the scheme is to utilise country's vast brackish water area for fish/prawn culture So far 31 projects covering an area of 1,446 hectare have been sanctioned A pilot project for construction of five pilot prawn farms and five prawn hatcheries was taken up during Seventh Plan with UNDP assistance. Nineteen Brackish Water Fish Farmers' Development Agencies are functioning in 10 coastal districts of the country

WELFARE PROGRAMMES FOR TRADITIONAL FISHERMEN

There are two important programmes for welfare of traditional fishermen, namely, (i) group accident insurance scheme for active fishermen and (ii) national welfare fund for fishermen Under the former a fisherman is insured for Rs 15,000 in case of death or permanent disability and Rs 7,500 in case of partial disability Annual premium is nine rupees which is shared between Centre and states Number of fishermen to be insured in 1989-90 was about eight lakh Under the latter civic amenities like housing, drinking water, recreation facilities, credit facilities, etc , were proposed to be provided in 62 selected fishermen villages during Seventh Plan Sanction had been issued by October 1989 to develop 41 villages

SPECIALISED INSTITUTES

Central Institute of Fisheries Nautical and Engineering Training (CIF-NET), Cochin aims at making available sufficient number of operators deep sea fishing vessels and technicians for shore establishments. It has a unit each at Madras and Vishakhapatnam. The Institute has an intake capacity of about 500 trainees in a year.

Integrated Fisheries Project, Cochin envisages processing, popularising and marketing of unconventional varieties of fish.

Central Institute of Coastal Engineering for Fisheries, Bangalore is engaged in techno-economic feasibility study for location of fishing harbour sites and brackish water fish farms.

EXPORT OF MARINE PRODUCTS

There has been spectacular increase in export of marine products. It went up from Rs 531.20 crore (97,179 tonnes) during 1987-88 to Rs 597.85 crore

(99,777 tonnes) during 1988-89. Target for 1989-90 was Rs 700.00 crore (1,15,000 tonnes) During Eighth Plan marine products have been identified as a major thrust area for exports.

AGRICULTURAL CENSUS

Department of Agriculture and Cooperation has been conducting agricultural census in each of the plan periods since 1970-71 Census in 1970-71 and 1980-81 were organised as part of World Agricultural Census Programme sponsored by Food and Agriculture Organisation of United Nations. They were conducted on a complete enumeration basis in most states/UTs. The other two census with agricultural years 1976-77 and 1985-86 as reference periods, were conducted on a census-cum-sample basis to reduce burden in collection and processing of primary data as also to keep costs low

Agricultural census seeks to collect information on distribution of holdings and area operated along with its related characteristics such as tenancy and terms of leasing. land use and cropping pattern, irrigation and sources of irrigation, etc , by different size classes. Data is utilised for formulation of poverty alleviation programmes in general and uplift of small and marginal farmers in particular. Skewness in distribution of land holdings and pattern of tenancy are also extremely useful for Department of Rural Development for certain programmes.

As part of agricultural census scheme, an input survey was also conducted for the first time in 1976-77 with a two per cent sample of villages canvassed in first stage of selection. Sample size was increased to seven per cent in subsequent census 1980-81 and 1985-86. Survey provides valuable information on consumption of various critical inputs such as fertilisers, pesticides and manures, agricultural machinery and implements, livestock and flow of credit to agricultural holdings by five major categories conforming to marginal, small, semi-medium, medium and large.

First phase of results of agricultural census 1985-86 relating to distribution of holdings and area operated by size classes and social groups has been completed with release of all statewise/all-India bulletins. Some of these bulletins have already been published in *Agricultural Situation in India*, a monthly issued by Directorate of Economics and Statistics, Ministry of Agriculture. Remaining bulletins will also be published in this publication in due coruse. All India Report giving detailed results of agricultural census is expected to be ready by next year.

Preliminary results of Input Survey, 1981-82 have been released for benefit of Input Divisions of Department of Agriculture and Cooperation as also Planning Commission, etc.

According to preliminary results of agricultural census 1985-86, total number of operational holdings in the country had increased from 8.89 crore in 1980-81 to 9.77 crore in 1985-86 registering a 10 per cent rise over the quinquennium. Operated area, on the other hand, had risen only marginally from 16.38 crore hectare to 16.39 crore hectare during the same period. Rise in number of holdings without any increase in area clearly showed pressure of population on land with average size of holding declining from 1.84 hectare in 1980-81 to 1.68 hectare in 1985-86. This declining trend had been witnessed in all five major categories, *viz.*, marginal, small, semi-medium, medium and large, though rate of decline in the last two categories was quite significant.

Holdings operated by scheduled caste and scheduled tribe households registered increase both in number and area operated during the period 1980-81 and 1985-86. These two social groups taken together accounted for 20.2 per cent of the number and 18.3 per cent of the total operated area in the country in 1985-86 as against 19 per cent and 17.2 per cent respectively in 1980-81. This clearly brings out improvement that has taken place in the status of these two social groups in operation of land which may be attributed to various land reforms and other measures taken by Government.

Small and marginal farmers with less than two hectare of operated area accounted for 76.4 per cent of total number of holdings in 1985-86 as against 74.5 per cent in 1980-81. Their share in total operated area, both absolute and percentagewise, had risen during the inter-regnum from 26.2 per cent in 1980-81 to 28.8 per cent in 1985-86.

AGRICULTURAL RESEARCH AND EDUCATION

Department of Agricultural Research and Education set up in 1973, in Ministry of Agriculture, is responsible for coordinating research and educational activities in agriculture, animal husbandry and fisheries. Besides it helps to bring about inter-departmental and inter-institutional collaboration with national and international agencies engaged in the same and allied fields. The Department provides Government support, service and linkage to Indian Council of Agricultural Research (ICAR).

INDIAN COUNCIAL OF AGRICULTURAL RESEARCH

ICAR set up in July 1929 as a registered society, is the apex body for planning, conducting and coordinating research in agriculture, animal husbandry and fisheries and effecting their applications at field level through medium of its different extension agencies under Central and state governments. Over the years, the country has developed one of the largest national agricultural research systems in the world. In order to perform its functions in an integrated manner, ICAR has created a national grid of cooperative research in which Central institutes, state agricultural universities and other educational and scientific institutions participate as equal partners. At Centre is ICAR headquarters headed by Director General with major administrative units under control of Secreatary, ICAR and eight subject-matter divisions of crop sciences, animal sciences, soils and agronomy, horticulture, fisheries, education, agricultural extension and agricultural engineering working under guidance and control of respective

Depouty Directors General. Overall research set-up comprises ICAR's 46 research institutes with 167 research stations spread all over the country, nine project directorates, 20 National research centres. 75 multi-disciplinary, multi-locational, all-India coordinated research projects with 1,168 research centres, 26 agricultural universities and 275 multi-disciplinary stations in 120 agro-climatic zones established under National Agricultural Research Project (NARP) to enhance regional research capabilities of state agricultural universities. All major states have one agricultural university (with the exception of Maharashtra which has four, Uttar Pradesh three, Himachal Pradesh, Karnataka and Bihar two each). These universities act at state level performing triple functions of research, education and extension. Indian Agricultural Research Institute (IARI), New Delhi, Indian Veterinary Research Institute (IVRI), Izatnagar, Central Institute of Fisheries Education Bombay (CIFE) and National Dairy Research Institute (NDRI) Karnal have the status of a deemed university. The Council supports 530 ad hoc research schemes for benefit of research workers in agriculture and allied fields including biotechnology in all parts of the country.

In addition this large network of agricultural research and educational institutes, ICAR has also established a large network of transfer of technology institutions These comprise national demonstration centres in 48 districts all over the country to demonstrate new crop varieties and production technologies; 38 operational research projects with 103 centres to test specific production technologies on area/watershed basis and to identity constraints in adoption of such technologies, 90 *krishi vigyan kendras* to train farmers in totality of agriculture production technologies; eight trainers training centres; 102 lab-to-land centres, and 45 centres for upliftment of scheduled castes and scheduled tribes.

Considering richness and diversity of genetic resources of crops, livestock and fish and to ensure their continued availability to suport agricultural production as well as to look into problems of soil conservation and use, the Council has established four National bureaux, one each of plant, animal, fish, and soil conservation and land use planning: National bureau of plant genetic resources has established a 'National Facility' for long term preservation of seeds as well as tissue culture materials. It is recognised that while improving agricultural production, ecological consequences also deserve attention. Need for conservation of soil, water, flora and fauna which are basic to sustained agricultural production, is fully emphasised. With modernisation in management procedures, managers of scientific research need similar exposure and training like industrial managers. For this the Council has established National Academy of Agricultural Research Management at Hyderabad.

CROP SCIENCES

Researches carried out under aegis of ICAR research system since independence, have led to the famed green revolution, giving the country a status of self-sufficiency in food production. Foodgrains production is now 1,720 lakh tonnes as compared to about 510 lakh tonnes in 1950-51. Production of an all time record of 182 lakh tonnes of oilseeds during 1988-89 has been achieved. Production has particularly increased in wheat and rice being 450 lakh tonnes and 560 lakh tonnes now as compared to 64 and 235 lakh tonnes respectively in 1949-50. About 250 varieties of rice suited for irrigated conditions, lowland conditions as well as for upland ecologies and possessing high degree of resistance to major important diseases and pests, have been released. A special programme has been launched to boost rice production in eastern states to realise production consistent with potentials. In wheat, 122 varieties with high yield and disease resistance, have been released; fertiliser needs and allied agro-techniques for different wheat growing zones have been developed.

For coarse grains such as maize, sorghum, pearl millet and minor millets, development of hybrids, composites and associated cultural practices has been a success. In pulses high-yielding varieties for chickpea and short duration varieties of *mungbean,* pigeonpea and *urdbean* have been developed. Cultivation of rabi pigeonpea in Bihar, rabi mungbean and urdbean in rice fallows of Andhra Pradesh, Orissa, Karnataka and Tamil Nadu and *rajmashbean* in plains of India has been made possible. Steps have been taken to increase oilseeds production by setting up a Technology Mission in 1986. High-yielding varieties and production technologies for different oilseed crops have been developed; possibilities of moving crops like rapeseed, soybean, etc., to non-traditional areas and to non-traditional seasons are being explored. India is first country in the world to have commercialised cultivation of hybrid cotton varieties, giving annual production of about 27 lakh bales. Similar success has been achieved in development of sugarcane varieties which are under cultivation in more than 25 countries. In jute and allied fibres also, high-yielding varieties and product development technologies have been evolved. High quality varieties of smoking tobacco with high yield and excellent aroma and flavour have been evolved. Production of quality seed is a vital link in the spread of new varieties. To assist the seeds corporations in producing high quality seeds of new varieties on a target-oriented basis, the Council has taken up national seeds projects. In plant protection, major emphasis is now on Integrated Pest Management (IPM) to reduce our dependance on use of toxic and hazardous chemicals. Effective IPM programmes have been developed for pest control in major crops such as rice, sugarcane, cotton, etc. Major success has been achieved in control of aquatic weeds, water hyacinth and water fern.

HORTICULTURE

Scientific cultivation of horticultural crops and plantation crops on basis of research findings has helped to increase average productivity of fruits by about 65 per cent during last 30 years. Thirty seven improved varieties of major vegetable crops including some F1 hybrids and 25 varieties of potato have been developed with characteristics of high yield and resistance to major pests and diseases. Area under potato has increased by nearly 75 per cent and the productivity by 125 per cent during this period. Significant achievement has been made in development of regular bearing hybrids of mango, high yielding varieties of grape, papaya, pome-granates, *ber* and lime. In plantation crops, five improved coconut hybrids with tolerance to moisture stress, have been developed and released. Multi-storey, high density and mixed farming systems have been developed with horticultural and plantation crops leading to improved productivity and increasing returns. Oilpalm hybrids with yield potential of up to 4.5 tonne oil per hectare are now available. More recently, tissue culture technology for rapid multiplication of cardamom, oilpalm, datepalm, papaya, banana, orchid and a few ornamental plants has been standardised. Seed production of vegetable crops has been given special priority. Fruits and vegetable preservation and storage have been emphasised under post-harvest technology programme. Simple designs have been developed for storage of potato and other perishable commodities and simple machines like cardamom drier, coconut dehusker, cassava chip making machine, have also been developed and popularised.

SOIL, WATER, AGRONOMY AND AGRO-FORESTRY

Resources inventory of soil, water and climate and resources management of land and other agricultural inputs are being developed by ICAR institutes and all-India coordinated research projects. Salient achievements include: (1) soil resource inventory of the country; (2) agro-climatology and its role in efficient crop planning; (3) improved dryland agriculture technology; (4) improved crop production practices for irrigated agriculture; (5) efficient practices for on-farm water management; (6) efficient practices for nutrient management including soil test-based fertiliser recommendation, (7) soil and water conservation measures for different agro-climatic regions; (8) management of salt-affected soils; (9) improved agriculture, alternate land use systems such as agro-forestry, silvi-pasture and agro-horticulture for arid and semi-arid regions; (10) biological nitrogen fixation and organic matter recycling for nutrient substitution, and (11) integrated area development models on watershed basis.

ANIMAL SCIENCES

Major research efforts in animal sciences have been directed towards: (i) evolving high-yielding strains of livestock including poultry utilising superior exotic strains or strain crosses through upgrading non-descript and low production breeds with superior indigenous breeds and selection with improved indigenous breeds; (ii) improving nutritional value of conventional feeds and fodders, identifying non-conventional feed resources mostly of industrial and forest origin and developing new feeding systems; (iii) studying problems of reproduction and adaptation in livestock with a view to developing more appropriate management practices; (iv) developing effective immunoprophylactic and laboratory diagnostic methods and understanding basic mechanisms involved in pathogenesis, pathology and immunology of diseases of animal and poultry; (v) improving techniques for processing, packaging, preservation, storage and marketing of milk and milk products and meat and meat products and characterisation of various types of animal fibre (wool), and (vi) development of jute, camel hair and ramie blends for use in textiles and carpet industry.

In addition to development of cross-bred cattle producing 3,870 to 4,040 kg milk and upgraded buffaloes producing 2,058 to 3,860 kg milk per lactation, fine wool sheep synthetic producing more than 2 5 kg of greasy fleece annually and mutton strains using exotic breeds for cross-breeding with the locals have also been developed Strain-cross poultry layers yielding a record hen-house production of 267 eggs have been evolved successfully. Several non-conventional feed/fodders and agro-industrial byproducts can now be safely utilized for animal nutrition Highly efficacious goat pox vaccines to control serious problems of high morbidity and mortality of goats and theileria vaccine to protect cross-bred calves have been developed successfully In animal products technology development of new formulae for infant foods, LP system to preserve raw milk under farm and field conditions for 12 to 14 hours, continuous *ghee* and *khoa* making plants, production of lean meat particularly useful to people having high blood pressure, development of technology to produce synthetic blends and apparel wool required by worsted sector are some significant contributions

In order to enhance production and productivity of existing livestock and to evolve superior germplasm of new high-yielding strains, development of biotechnology techniques involving chiefly genetic engineering, embryo transfer technology and cryo-preservation would be developed as future research strategy. Research on epidemiology, diagnosis and control of important animal and poultry diseases would be strengthened. Development of milk processing and preservation technologies practicable in rural areas at low energy cost, exploitation of modern dairy processess like 'reverse osmosis' and UHT, documentation and modernisation of Indian traditional milk products, utilisation of untapped meat resources like buffalo and rabbit broilers and development of wool processing and utilisation technologies particularly for short staple wools will be the future programmes in animal products technology

FISHERIES

Fishery research has led to development of procedures for determining marine fisheries resources, craft and gear design and microbiological standards for fish and fish products. Technologies have been developed for open sea-ranching involving mussels, culture of pearl oyster, edible oyster, sea weed and prawns and fresh water aquaculture incorporating six (three

Indian and three exotic) carp species giving up to 11 tonnes per hecatre production. Fisheries institutes in the Council have played an important role in human resource development through training at various levels including Master's and Ph.D. level. Central Institute of Fisheries Education, Bombay has been raised to deemed university status

RESEARCH IN FRONTIER AREAS

Indian Council of Agricultural Research has established three national centres on biotechnology in agriculture, animal health and animal production at three national institutes. It will involve biological nitrogen fixation, plant cell and tissue culture, molecular biology and biochemistry of crop plants, especially oilseeds utilising DNA recombinant technology, developing monoclonal antibodies and hybridomes for cheaper and more effective immunodiagnostic and immunoprophylactic agents, and multiple ovulation, embryo transfer technology, genetic manipulation and cryopreservation. Four national research centres would be set up under ICAR, namely, genetic environment centre, national research centre for agricultural economics and policy research, national research centre for agricultural exports and national research centre for women in agriculture

AGRICULTURAL EDUCATION

Major growth of agricultural education took place with establishment of state agricultural universities in 1960's At present there are 26 agriculture universities with 54 agricultural colleges, 28 veterinary colleges, 7 dairy science colleges, 16 home science colleges, 16 agricultural engineering colleges and five fisheries colleges. ICAR is performing the role of UGC with respect to agricultural education There is a scientific panel on education and a norms and accreditation committee to make recommendations and advise the Council on standards of education, curricula, admission requirement and financial assistance.

Current admission capacity is 8,000 under-graduates and 3,000 Post-graduates excluding the capacity in private agricultural colleges, non-constituents of agricultural universities. In veterinary, agricultural engineering, home science, dairy science, fisheries and horticulture, admission capacity at under-graduate level is 1,800, 510, 900, 175, 160 and 240 respectively. A massive programme is under way to train teachers in forestry for which faculties are being established in a number of agricultural universities.

TRANSFER OF TECHNOLOGY

First transfer of technology programme was National Demonstration Project initiated in 1965. New programmes like operational research projects, krishi vigyan kendras, teachers' training centres and lab-to-land programmes have since been started. These 'transfers of technology programmes' have played a very important role in demonstration of new varieties and production technology on watershed/whole village basis and individual farm family basis. They have allowed scientists to identify constraints in transfer of technology so that they can reorient their research programmes to needs of farmers.

PUBLICATION AND INFORMATION

One of the major objectives of ICAR is to act as a clearing-house of information relating to agriculture, animal sciences, fisheries and allied subjects. Over the years it has become one of the biggest publishers of agricultural literature in Hindi and English. In addition to 9 scientific and popular periodicals, it brings out scientific monographs, technical books, popular books, handbooks, technology bulletins, reports, directories and other miscellaneous publications. Financial assistance is also given to learned societies for bringing out scientific journals.

Major research findings and production technologies of topical nature are disseminated through television, radio and national press from time to time. Exhibitions and film shows are organised for transferring useful agricultural technologies to farmers.

ICAR also operates an agricultural research information centre (ARIC) which is the main source of information on current projects. ARIC brings out directories of agricultural personnel, research workers in India, research schemes, etc.

COOPERATION

Cooperative idea took a concrete shape in India first time in 1904, when the Cooperative Credit Societies Act, a measure designed to combat rural indebtedness and provide for registration of credit societies, was passed. Later in 1912, the Cooperative Societies Act also provided for registration of non-credit societies as well as federations of cooperatives. Since then cooperative movement has made noticeable progress, specially in agricultural credit, marketing and processing of agricultural produce, supply of farm inputs and distribution of consumer goods. Idea of the growth of cooperative movement in India can be had from the fact that there were as many as 3.50 lakh cooperative societies of all types with total membership of about 15 crore and total working capital of about Rs 55,000 crore as on 30 June 1989. Other distinguishing feature of the cooperative scene is that it is largely village-based. Government's emphasis on institutionalisation of distribution of inputs to farmers and marketing of their agricultural produce through cooperatives owned by them, has helped a great deal in strengthening cooperative sector in rural areas Overall strategy in this regard is to promote agricultural production through provision of inputs for increasing production and post-harvest facilities to protect interests of farmers.

GROWTH OF COOPERATIVES

Salient features and operational dimensions of cooperative movement for selected years between 1960-61 and 1987-88 are given in table 15.6.

TABLE 15.6 GROWTH OF COOPERATIVES

	1960-61	1970-71	1980-81	1984-85	1985-86	1986-87	1987-88
Number of Societies (lakh)	3.32	3.20	3.26	3.15	3.21	3.42	3.48
Membership (lakh)	352	644	1,176	1,410	1,420	1,465	1,504
Share Capital (Rs crore)	222	851	2,088	3,535	3,998	4,425	4,877
Working Capital (Rs crore)	1,312	6,810	25,119	37,769	41,548	47,550	53,880

PRIMARY AGRICULTURAL CREDIT SOCIETIES

By June 1988, there were 93,000 primary agricultural credit societies operating in rural areas. Membership of these societies was 8.98 crore. Universal membership has now been accepted as the policy, so far as primary agricultural societies are concerned, so that people belonging to weaker sections could become members of the cooperatives and avail of their services. Agricultural credit societies had a share capital of about Rs 1,005.3 crore at the end of June 1988. Total loans advanced by these societies amounted to Rs 3,687 crore during 1987-88.

MARKETING AND PROCESSING COOPERATIVES

Cooperative marketing structure comprises 6,777 primary marketing societies (2,759 general purpose societies at *mandi* level, 4,018 special commodities societies for oilseeds, etc.) and 161 district/Central societies covering nearly all important mandis in the country, 29 general purpose state cooperative marketing federations and National Agricultural Cooperative Marketing Federation (NAFED) which acts as a nodal marketing agency in cooperative sector at national level. Total value of agricultural produce marketed by cooperatives amounted to about Rs 5,416 crore in 1988-89 as against Rs 1,800 crore in 1979-80. Total value of foodgrains handled by marketing cooperatives increased from about Rs 500 crore in 1979-80 to about Rs 1,128 crore in 1986-87. During 1987-88, NAFED achieved a business turnover of Rs 180 crore as aganist Rs 30.53 crore in 1976-77.

Structure of processing units established in cooperative sector conforms to two distinct patterns, namely, (a) units established by independent processing societies and (b) units established as adjuncts to cooperative marketing societies. Under the first category fall larger units such as cooperative sugar factories, spinning mills and solvent extraction plants. Medium and small units such as rice mills, oil mills, cotton ginning and pressing units, jute baling units, etc., mostly fall under the second category. There were 2,402 agro-processing units as on 31 March 1988 in cooperative sector. Of all the cooperative agro-processing industries, cooperative sugar factories have achieved notable success. Number of licensed/registered units remained at 232 of which 211 had been installed up to March 1988. During 1987-88 sugar season (October 1987 to September 1988), 196 cooperative sugar factories were in production. They produced 52.6 lakh tonnes of sugar accounting for about 57.5 per cent of the country's total production of 91.5 lakh tonne. At national level, National Federation of Cooperative Sugar Factories renders advice to member cooperatives on technical improvement, financial management, raw material development and inventory control.

STORAGE

National Cooperative Development Corporation (NCDC) is responsible for planning, promoting and financing the programme of augmenting storage capacity of cooperatives at various levels. Storage capacity of 109 lakh tonnes had already been constructed in cooperative sector by 1988-89 as against a capacity of 7.5 lakh tonnes in 1961-62. This achievement had been possible owing to implementation of four large storage projects in 12 states during the last eight years with financial assistance obtained from World Bank and European Economic Community. At present, cooperatives own 48,050 rural and 8,051 marketing godowns in the country.

By 1988-89, there were 239 cooperative cold storages under different stages in the country with a capacity of 6.79 lakh tonnes. Of these 222 cold storages with a capacity of 6.09 lakh tonnes have already been installed and commissioned.

INDUSTRIAL COOPERATIVES

Cooperatives occupy an important place in the field of village and small industries and handloom weaving As on 30 June 1988 there were 60,716 industrial cooperatives with a membership of 46.83 lakh. Business turnover of these societies was Rs 1,455 78 crore during 1987-88. National Federation of Industrial Cooperatives was set up in 1966 with a view to assisting the marketing of products of member societies.

COOPERATIVE SPINNING MILLS

The total number of cooperative spinning mills installed was 101 (44 in growers' sector and 57 in weavers' sector) with a capacity of about 26.83 lakh spindles which was about 20 per cent of total spindlage in the country as on 31 March 1988. Cooperative spinning mills had organised in 1964 a national level federation known as All India Federation of Cooperative Spinning Mills which is a promotional and developmental organisation.

SUPPLY OF AGRICULTURAL INPUTS

Cooperatives play a significant role in production and distribution of agricultural inputs. During 1988-89 nearly 35 lakh tonnes of fertilisers were distributed through a network of 76,000 cooperative retail outlets representing over 33 per cent of total fertilisers distributed in the country. Cooperatives have also distributed other inputs like seeds, pesticides and agricultural implements. Financial assistance was provided by NCDC to 1,542 primary societies for establishing farmers' service centres for undertaking supply of various inputs and also providing extension services to farmers and training to employees of cooperatives

FUNCTIONAL COOPERATIVES

Functional cooperatives for programmes like dairy, fishery and poultry, mainly relate to the service of weaker sections. Such cooperatives provide increased employment and income opportunities to different sections like small and marginal farmers and fishermen NCDC gives financial assistance to various types of cooperatives.

DAIRY COOPERATIVES

Main thrust of dairy development is on organisation of three-tier milk producers' cooperatives on Anand pattern Contribution of cooperatives in implementation of 'Operation Flood' is substantial. On 30 June 1988 there were 59,571 primary milk supply cooperatives with a membership of 68.93 lakh. During 1987-88 cooperatives handled milk and milk products valued at Rs 1,170 crore Primary milk cooperatives are generally federated into milk unions at district and state levels There were 251 such unions in 1987-88 National Federation of Dairy Cooperatives was set up in 1970 with headquarters at Anand

FISHERY COOPERATIVES

Organisational structure of fishery cooperatives normally consists of primary fishery cooperatives at base level. A super-structure of federation of primary fishery cooperatives has been built up. It comprises district and Central federations and state level organisations. All India Fishermen Cooperative Federation was set up in 1980. On 30 June 1988 there were 8,530 primary fishermen's cooperatives with a membership of 9.12 lakh having business turnover of Rs 74.30 crore during 1987-88.

POULTRY COOPERATIVES

By June 1988 there were over 2,126 primary poultry cooperatives with a membership of 1.21 lakh, having business turnover of Rs 17.36 crore during 1987-88.

MULTI-PURPOSE TRIBAL COOPERATIVES

As part of the programme of economic development of tribals, cooperatives in tribal areas were reorganised to enable them to function as multi-purpose societies known as large-sized multi-purpose societies (LAMPS). State level cooperative tribal development corporations/federations have been established in Andhra Pradesh, Bihar, Madhya Pradesh, Maharashtra, Rajasthan, West Bengal and Orissa to serve as apex organisations for marketing of minor forest produce and consumer goods.

LABOUR CONTRACT AND CONSTRUCTION SOCIETIES

Labour contract and construction cooperatives have been organised with a view to providing employment at reasonable wages to their members and preventing their exploitation by contractors. As on 30 June 1988 there were 19,513 labour cooperatives and forest labour cooperatives with a membership of 13.83 lakh. Value of works executed by these societies during 1987-88 was Rs 363.31 crore.

NON-AGRICULTURAL CREDIT SOCIETIES

There were 26,506 primary non-agricultural credit societies including employees' credit societies and urban banks with a membership of 140.12 lakh by June 1988. They raised Rs 451.38 crore as share capital, Rs 684.21 crore as deposits and Rs 1,898 crore as working capital. Their total lendings during 1987-88 were Rs 1,410.46 crore.

MULTI-STATE COOPERATIVE SOCIETIES

Cooperative societies is a state subject under the Constitution. However, such cooperative societies, having their objects not confined to one state and serving interests of members in more than one state, come under legislative and executive jurisdiction of Central government.The Multi-State Cooperative Societies Act, 1984 came into operation from 16 September 1985. Earlier, these multi-state cooperative societies were governed by the Cooperative Societies Act of the state where its principal place of business was located.

At present there are 182 multi-state cooperative societies in the country. These include 20 national cooperative societies such as Indian Farmers Fertiliser Cooperative Ltd., Krishak Bharati Cooperative Ltd., National Agricultural Cooperative Marketing Federation of India, National Cooperative Consumers' Federation, etc.

NATIONAL LEVEL COOPERATIVE FEDERATIONS

A major development after independence has been the emergence of national cooperative federations which has added a new dimension to cooperative infrastructure. With National Cooperative Union of India at the apex, other national level cooperative federations established in the country are: National Agricultural Cooperative Marketing Federation, National Federation of State Cooperative Banks, National Federation of Cooperative Sugar Factories, National Cooperative Agriculture and Rural Development Banks' Federation, National Cooperative Consumers' Federation, National Federation of Industrial Cooperatives, All India Federation of Cooperative Spinning Mills, National Cooperative Housing Federation, National Cooperative Dairy Federation, National Federation of Urban Cooperative Banks and Credit Societies, National Federation of Fishermen's Cooperatives, National Federation of Labour Cooperatives and National Cooperative Tobacco Growers' Federation.

COOPERATIVE TRAINING AND EDUCATION

A three-tier well-organised structure of cooperative training is available in India. It consists of a national institute of cooperative management known as Vaikunth Mehta National Institute of Cooperative Management (VMNICM), Pune for catering to training requirements of senior/key level cooperative personnel, a network of 18 cooperative training colleges for training of intermediate level personnel of cooperatives and state cooperation departments and 95 cooperative training centres for training of junior level personnel. VMNICM and 18 cooperative training colleges situated at state headquarters are functioning under administrative and financial control of National Council of Cooperative Training of the National Cooperative Union of India which is financed entirely by Government. Cooperative centres for training of junior level personnel are functioning under control of state cooperative unions and state governments.

16 Water Resources

WATER is vital for realising full potential of agriculture sector and country's development. Optimum development and efficient utilisation of our water resources, therefore, assumes great significance.

The erstwhile Department of Irrigation was redesignated as Ministry of Water Resources in October 1985 and assigned the nodal role for development, conservation and management of water as a national resource. Water being the most crucial element, National Water Policy was adopted in September 1987. The policy recommends need for integrated and multi-disciplinary approach to planning, formation and implementation of projects. It also lays down priority areas for planning and operation of systems. Highest priority has been assigned to drinking water followed by irrigation, hydro-power, navigation, industrial and other uses. The policy further recommends that the quality of surface and ground water should be monitored.

In flood management sector, need for having a Master Plan for flood control and management for each flood-prone basin through sound watershed management was recognised in the policy and establishment of extensive network for flood forecasting recommended. The policy further recommended that erosion of land by sea or river be minimised by.suitable cost-effective measures Therefore, planning and management of this resource and its optimal, economical and equitable use with application of science and technology has become a matter of utmost urgency.

The Ministry is responsible for broadlv laying down policies and programmes for development and regulation of the country's water resources. Its role essentially covers sectoral planning, coordination, policy guidelines, technical examination, assistance in water resources projects and facilitation of external help and assistance in resolution of disputes as a result of inter-state problems.

BASINWISE DEVELOPMENT OF WATER RESOURCES

SURFACE WATER

India has been bestowed with substantial water resources. Overall water resources of the country have been assessed at 1880 km^3 annually. Of this it may be possible to harness about 690 km^3 of water for beneficial use. In addition ground water resources of the country are assessed at about 452 km^3.

India has constructed a large number of storages and diversions for

TABLE 16.1 SURFACE WATER RESOURCES DEVELOPMENT OF MAJOR BASINS

Basin	Average Annual Runoff km³	Utilisable Flow km³	Storage: Completed km³	Storage: Under Construction km³	Major Projects: Completed: No	Major Projects: Completed: Potential m ha	Major Projects: Under Construction: No	Major Projects: Under Construction: Potential m ha	Hydro-power mw: Total	Hydro-power mw: Created	Hydro-power mw: Under Construction
Indus	73	46	14.5	2.44	12	2.95	7	2.75	19,988	2,265	3,299
Ganga	501	250	34.8	16.0	41	7.54	—	7.82	10,715	1,393	1,446
Brahmaputra	537	24	0.7	1.35	—	—	3	0.47	31,012	112	565
Barak Sub-basin	60	—	—	0.52	—	—	2	—	2,042	9.5	—
Godavari	119	76	16.8	14.0	12	0.92	—	2.6	5,091	872	857
Krishna	68	58	30.9	7.1	15	1.02	24	3.58	2,997	1,286	465
Kaveri	21	19	7.53	0.42	9	1.02	4	0.42	1,359	503	107
Penner	6.81	6.81	0.36	2.15	1	0.07	1	0.04	—	—	—
Mahanadi	67	50	8.62	4.96	6	1.01	7	0.56	627	199	34
Brahmani Baitarni	36	18.1	1.09	3.3	3	0.15	2	0.46	548	8.2	—
Sabarmati	3.8	1.91	1.09	0.33	1	0.03	1	0.06	—	—	—
Mahi	11.8	3.1	2.20	2.51	2	0.21	4	0.12	68	25	40
Narmada	41	34.5	2.8	11.44	3	0.37	10	2.33	1,321	—	835
Tapi	18	14.5	8.39	0.69	3	0.38	2	0.08	119.7	79.2	4.7

harnessing its vast water potential. Storage built up in the completed projects up to the end of Sixth Plan was about 143 km^3. Another 79 km^3 of storage *will be available from projects under construction and* 82 km^3 from projects under consideration. In addition there is a large number of small tanks whose storage adds up to about 30 km^3

Total hydro-power potential of the country has been assessed at 84,000 mw at 60 per cent load factor. Presently completed and on-going schemes will exploit about 15,600 mw *i.e.*, 20 per cent of the assessed potential. Hydro-power installed capacity at the end of Sixth Plan was 14,450 mw forming about 34 per cent of the total installed capacity.

In the absence of information on actual water use by various sectors, estimates made in this regard (1985) indicate that water use may be of the order of 540 km^3 of which 360 km^3 is from surface water and 180 km^3 from ground water. Out of this 470 km^3 is for irrigation and 70 km^3 for other uses including domestic (16.7 km^3), industrial (10 km^3) and thermal power plants (2.7 km^3) requirements. A recent assessment puts domestic requirement in 1991 at about 26 km^3.

Basinwise water resources development for 12 major river basins is given in table 16.1.

GROUND WATER

Based on resource estimates on district/taluk level total replenishable gound water resource has been provisionally estimated at 45.2339 m.ha. (452.34 km^3) annually. Basinwise break up of the potential is given in table 16.2

Ground water levels monitored for November 1989 indicate a general rise as compared to levels in April-May 1989 throughout the country except few localised pockets in some parts of western Rajasthan, Punjab, Madhya Pradesh, Maharashtra, Karnataka, Kerala and Tamil Nadu. Localised lowering up to two metres has also been observed in north-eastern states. Rise in ground water levels is in the range of two metres in most of the areas and over four metres in some parts.

However compared to November 1988 ground water levels show a general fall of up to two metres in most parts of the country and over four metres in parts of Madhya Pradesh, Andhra Pradesh, Tamil Nadu and Gujarat. Rise in some parts of western Rajasthan, Gujarat, western Maharashtra, north-eastern states, Uttar Pradesh, northern Orissa, Kerala, Karnataka, Tamil Nadu and West Bengal was up to two metres. Isolated pockets in parts of Rajasthan and Gujarat even show a rise in water level of over four metres.

IRRIGATION DEVELOPMENT

India has a culturable area of 1,850 lakh ha of which 1,410 lakh ha is sown area. Sustained and systematic programme for development of irrigation facilities in the country was taken up with the advent of planned

TABLE 16.2 BASINWISE GROUND WATER RESOURCE POTENTIAL (PRORATA BASIS)

(Tentative)

Basin	Total replenishable ground water resource (m ha a/Yr)	Provision for drinking, industrial and other uses (m.ha a/Yr)	Utilisable ground water resources for irrigation (m ha a/Yr)	Net Draft (m ha a/Yr)	Balance ground water potential available for exploitation (m ha a/Yr)	Level of ground water development (percentage)
1 Indus	2.5535	0.3830	2.1705	1.7132	0.4573	78.9320
2. Ganga	17.4664	2.6200	14.8464	4.3032	10.3432	30.3319
3 Kuchchh Composite and Saurastra Composite	1.3100	0.1965	1.1135	0.3852	0.7283	34.5936
4. Cambay Composite	0.8200	0.1230	0.6970	0.2255	0.4715	32.3529
5. Narmada	1.2000	0.1800	1.0200	0.1596	0.8604	15.6471
6 Tapi	0.9400	0.1410	0.7990	0.1819	0.6171	22.7660
7. Subarnarekha	0.2000	0.0300	0.1700	0.0101	0.1599	5.9412
8. Brahmani with Baitarni	0.5400	0.0810	0.4590	0.0215	0.4375	4.6841
9. Mahanadi	2.3740	0.3561	2.0179	0.0957	1.9222	4.7426
10 North East Composite	1.8900	0.2835	1.6065	0.1970	1.4095	12.2627
11. Godavari	4.2100	0.6315	3.5785	0.5811	2.9974	16.2386
12 Krishna	2.9360	0.4404	2.4956	0.7283	1.7673	29.1834
13. Penner	0.4900	0.0735	0.4165	0.1406	0.2759	33.7575
14. Madras Composite and South Tamil Nadu Composite	2.0544	0.3082	1.7462	0.7913	0.9549	45.3145

TABLE 16.2 (Continued)

(Tentative)

Basin	Total replenishable ground water resource (m ha a/Yr)	Provision for drinking, industrial and other uses (m ha a/Yr)	Utilisable ground water resources for irrigation (m ha a/Yr)	Net Draft (m ha a/Yr)	Balance ground water potential available for exploitation (m ha a/Yr)	Level of ground water development (percentage)
15 Kaveri	1 3800	0 2070	1 1730	0 5311	0 6419	45 2771
16 Western Ghat Composite	1 8896	0 2834	1 6062	0 3456	1 2606	21 5172
17 Brahmaputra	2 8080	0 4212	2 3868	0 0503	2 3365	2 1074
18 Meghna	0 1720	0 0258	0 1462	0 0050	0 1412	3 4200
	45 2339	6 7851	38 4488	10 6662	27 7826	27 7413

development in 1951. Irrigation potential created during pre-Plan period was 226 lakh hectare of which 97 lakh hectare was from major and medium irrigation projects and 129 lakh hectare from minor irrigation schemes Cumulative irrigation potential increased to about 675 lakh hectare by the end of 1984-85. Of this 300 lakh hectare was from major and medium irrigation projects and 375 lakh hectare from minor irrigation schemes. Target of additional potential during Seventh Plan was 129 lakh hectare of which 43 lakh hectare was from major and medium irrigation projects and 86 lakh hectare from minor irrigation schemes. Approved outlay for Seventh Plan was about Rs 17,861 crore for major, medium and minor irrigation programmes and about Rs 1,671 crore for Command Area Development Programme.

Additional irrigation potential achieved during 1985-88 in regard to major and medium irrigation was 16.5 lakh hectare Minor irrigation potential which includes surface and ground water was 47.7 lakh hectare. Total irrigation potential added during Seventh Plan period was expected to reach 114.4 lakh hectare against which the additional utilisation would increase by about 100.6 lakh hectare. Government proposes to develop an irrigation potential of 100 lakh hectare through ground water resources in the country during Eighth Plan period, involving construction of 17.11 lakh dugwells, 16.89 lakh shallow tubewells and 11 thousand public tubewells.

Main thrust of the development policy for irrigation sector is towards achieving the assessed target of 1,130 lakh hectare of gross irrigation potential in the country based on conventional methods of diversion and storage by 2010 AD or so. Of this about 585 lakh hectare is expected to be irrigated eventually from major and medium projects and the balance by minor schemes. Yearwise breakup of irrigation potential during Seventh Plan is given in table 16.3.

TABLE 16.3 IRRIGATION POTENTIAL

(Lakh hectare)

	Ultimate (by 2010 AD)	Created up to Sixth Plan 1984-85	Seventh Plan 1985-90 (target)	1985-86 Achievement	1986-87 Achievement	1987-88	1988-89 Likely	1989-90 Target
Major and Medium	580	300	43	5.1	4.6	6.8	7.2	8.3
Minor irrigation								
(a) Surface water	150	97	15	2.9	2.8	2.7	3.1	3.0
(b) Ground water	400	278	71	12.3	13.5	13.5	14.0	16.5
	1,130	675	129	20.3	20.9	23.0	24.3	27.8

MAJOR AND MEDIUM IRRIGATION PROJECTS

Irrigation projects with Culturable Command Area (CCA) of more than

10,000 hectare are classified as major projects and projects with CCA of more than 2,000 to 10,000 hectare are categorised as medium projects.

Between 1951 and 1985, 246 major and 1,059 medium projects were taken up for execution. Among them, 65 major and 626 medium projects were completed by 1985. During Seventh Plan, 18 new major and 29 new medium projects were taken up. Out of the 199 major and 462 medium projects in hand 37 major and 187 medium projects were expected to be completed during Seventh Plan period.

Major irrigation projects taken up and completed during various Plan periods are shown in table 16.4.

TABLE 16.4 MAJOR IRRIGATION PROJECTS TAKEN UP AND COMPLETED

Plan	Projects taken up	Projects completed
First Plan(1951-56)	24	1
Second Plan (1956-61)	23	4
Third Plan (1961-66)	27	9
Annual Plans (1966-69)	11	1
Fourth Plan (1969-74)	33	9
Fifth Plan (1974-78)	73	4
Annual Plans (1978-80)	14	1
Sixth Plan (1980-85)	41	36
Total projects by end of Sixth Plan	246	65

MINOR IRRIGATION

Minor irrigation programme includes ground water development through construction of dugwells, private shallow tubewells, deep public tubewells, boring and deepening of dugwells and small surface water development works through diversion schemes, storage schemes and lift irrigation projects, each having a culturable command area of not more than 2,000 hectare.

Provisional numbers of minor irrigation structures as reported/estimated are as follows:

GROUND WATER STRUCTURE

(Anticipated at the end of March 1990)

	Name of Structure	Number (Lakh)
1.	Dugwells	94.90
2.	Shallow Tubewells	47.50
3.	Public Tubewells	0.64
4.	Electrical Pumpsets[1]	82.30
5.	Diesel Pumpsets[1]	43.50

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[1] Includes those installed on items 1,2,3, and also on surface water bodies like ponds, tanks, canals, rivers and drains.

SURFACE WATER STRUCTURE

(As per Minor Irrigation Census report of 1986-87)

Name of Structure	Number (Lakh)
1. Diversion Weirs	1.19
2. Storage Tanks	5 11
3. Lift Irrigation Schemes	3 50

Ground water development which constitutes bulk of the minor irrigation programme, is essentially a people's programme implemented primarily through individual and cooperative efforts with finance obtained mainly from institutional sources. To encourage use of water saving devices such as sprinklers, drip system, hydrams, water turbines and hand pumps, Government subsidies are made available to small and marginal farmers for their purchase.

Minor irrigation schemes provide instant and reliable source of irrigation to cultivators. It also provides critical help in improving the status of irrigation and controlling water-logging and salinisation in canal command. Minor irrigation surface water projects which are financed through Plan funds, often provide means of irrigation in several undulating tracts comprising bulk of chronically drought-affected areas. Initial investment on these schemes is comparatively low and they can be completed quickly. Moreover, these schemes are labour-intensive and offer employment to rural people. Growth of irrigation potential from minor irrigation schemes is shown in table 16.5.

TABLE 16.5 MINOR IRRIGATION POTENTIAL

(Cumulative)

(Lakh hectare)

Period	Potential
Ultimate potential (By 2010 AD)	550.00
Potential at the end of 1950-51	129.00
First Plan	140.00
Second Plan	147.50
Third Plan	170.00
Annual Plans (1968-69)	190.00
End of Fourth Plan	235.00
End of Fifth Plan	273.00
End of Annual Plan (1979-80)	300.00
End of Sixth Plan	375.00
End of 1985-86	390.20
End of 1986-87	406.50
End of 1987-88	422.70
End of 1988-89	439.90
End of 1989-90 (anticipated)	459.40

COMMAND AREA DEVELOPMENT PROGRAMME

Centrally-sponsored Command Area Development (CAD) Programme was launched at the beginning of Fifth Plan (1974-75) with the specific objective of ensuring a faster and better utilisation of irrigation potential in selected major and medium irrigation projects in the country. Programme broadly covers on-farm development works which include construction of field channels, field drains, land levelling and shaping wherever necessary, farm roads, consolidation of holdings and realignment of boundaries, introduction of *warabandi* or rotational supply of water and setting up of WHF wireless network for better communication in order to ensure equitable and assured supply of irrigation even to tail-end holdings, arrangement for supply of inputs and credit, agricultural extension services, construction of markets and godowns and development of ground water for conjunctive use. Programme covering 131 selected major and medium irrigation projects in 20 states and two union territories with total culturable command area of over 180 lakh hectare, is being executed through 50 command area development authorities.

During Seventh Plan, more emphasis was laid on improving water management and water delivery system, adaptive trials, training of field-level staff and farmers, monitoring and evaluation of the Programme and involvement of farmers in water management.

Financing of CAD Programme is from three sources, namely, Central assistance to states on matching basis for certain selected items, state government's own resources and institutional credit for works, land development, marketing and storage.

From 1986-87, financing pattern has been revised, according to which construction of field channels from outlets for 5-8 hectare blocks is being financed on matching grant, 50 per cent to be borne by Centre and the remaining by states. In Seventh Plan allocation for CAD Programme was Rs 500 crore in Central sector.

It has been decided to include on pilot basis suitable minor irrigation projects of states/UTs of north-eastern region including Sikkim, Jammu and Kashmir and Himachal Pradesh for command area development.

Ultimate objective of CAD Programme is to optimise agricultural production in command areas. Every CAD administrator has been advised to undertake intensive crop-cutting experiments for each crop season so that the rise in agricultural productivity in irrigated commands can be effectively monitored. Central government has also decided to provide cent per cent cost of training for orientation of senior level officers involved in the Programme.

By March 1989, physical achievements under the Programme included 105 lakh hectare of area provided with field chanmels, 19 lakh hectare of land levelled and 42 lakh hectare covered under warabandi.

FLOOD MANAGEMENT

Floods cause immense damage to human life and property almost every year. Of the country's total area, about 1/8th has been declared as flood-prone. National Flood Control Programme launched in 1954 was divided into three phases–immediate, short term and long term. The immediate phase was devoted to intensive collection of data and execution of emergent flood protection measures. The short term programme which was roughly to coincide with Second Plan, envisaged construction of embankments, protection of some towns, raising of villages, etc. The long term phase envisaged construction of storage reservoirs, stabilising benefits of works already carried out and taking up additional works of embankments.

ACHIEVEMENTS

Since the launching of this Programme an expenditure of about Rs 1,763 crore was incurred on flood control sector till the end of Sixth Plan. In Seventh Plan, an outlay of Rs 947.39 crore was approved (Rs 797.46 crore by states and union territories and Rs 149.93 crore by Centre).

Since 1954, nearly 15,467 km of new embankments, 31,199 km of drainage channels, 765 town protection works and raising the level of about 4,705 villages, had been completed up to March 1989 (anticipated). In addition anti-sea erosion measures to protect the coastline, especially in Kerala, were taken up. Of the 320 km of vulnerable coastline, 309 km was protected up to March 1989. Besides, a number of reservoir projects had been completed which have helped in moderating flood peaks in the downstream reaches. Notable among these are Hirakud Dam on the Mahanadi, dams in the Damodar system, Bhakra Dam on the Sutlej, Pong Dam on the Beas and Ukai Dam on the Tapi. All these works have afforded a reasonable degree of protection to about 1,364 lakh hectare of land

The country on the whole experienced good and well distributed rainfall during 1989-90. Floods of severe intensity in Assam and Andhra Pradesh and heavy rain in Kerala, Karnataka and Maharashtra have caused extensive damage. It is reported that an area of about 77 lakh hectare had experienced floods during the 1989 monsoon affecting a population of about 340 lakh. Crops worth about Rs 955 crore in an area of about 25 lakh hectare were reported to have been damaged. In all nearly 1,724 human lives and 75,082 cattle were reported to have been lost. Total value of damage as tentatively assessed by concerned states was reported to be about Rs 2,380 crore.

FORECASTING

Government set up a Flood Forecasting Organisation in 1954 to issue advance warnings about impending floods so as to alert agencies concerned with rescue and relief. Central Flood Forecasting Organisation has developed a network of about 149 forecasting stations catering to requirements of most of the flood-prone inter-state rivers. 5,536 forecasts were issued in 1989 flood season and 95.1 per cent of these were within the reasonable degree of accuracy.

NEW PROJECTIONS

Working Group on Flood Management for Eighth Plan has recommended a higher outlay of Rs 5,060 crore to afford reasonable flood protection to an additional area of 30.9 lakh hectare during Eighth Plan period. It is one of the four working groups to formulate programmes for Eighth Plan in irrigation and flood management sector. The other groups are on: (a) Major and Medium Irrigation Projects; (b) Minor Irrigation Projects, and (c) Command Area Development Programme. Working Group on Major and Medium Irrigation Projects recommended completion of on-going major and medium irrigation projects with a view to creating faster rate of irrigation potential, except a very few new projects that could be taken up during the Plan period to remove regional imbalances and also in drought-prone and tribal areas. This will be further supplementd with the establishment of Minor Irrigation Corporation in minor irrigation sector.

A standing committee for inter-state matters of water resources under National Water Resources Council has been constituted to consider inter-state water disputes and give suggestions to the Council.

Government has also constituted an Environmental Monitoring Committee to oversee the implementation of environmental safeguards at the stage of clearance of irrigation, multi-purpose and flood control projects. It will prepare and submit an annual report on the status of environmental management of different projects in various river basins. The Committee will also review the mechanism established by project authorities to monitor the ecology of project areas, irrigation command areas and catchment areas. Another committee will draft guidelines on protection measures required in the command area of irrigation projects to avoid problems of water-logging and salinity.

INTER-STATE WATER DISPUTES

Major river basins of the country are almost all inter-state. With so many rivers flowing through more than one state, it is natural that differences would arise sometime or other amongst concerned states with regard to use and distribution or control of water of such rivers. This is especialy so in view of the rapid pace of water resources development to meet the increasing demand for irrigation, hydel power generation, domestic and industrial water supply, etc.

Efforts are made as far as possible to resolve disputes by negotiations amongst states concerned or with the assistance of Centre. Adjudication through tribunal is resorted to when warranted.

Several inter-state water disputes have been resolved in the recent past. Some of these are: agreements regarding construction of Thein Dam (Ravi), Bansagar Dam (Sone), Rajghat Dam (Betwa), development of Damodar-Barakar, Agoy, Mayurakshi, Mahananda, Subernarekha and Kanhar rivers, some common rivers between Madhya Pradesh and Orissa and some between Maharashtra and Madhya Pradesh.

Sharing of river waters of the Krishna, the Godavari and the Narmada by concerned basin states has been settled through respective tribunals set up by Government under the Inter-State Water Disputes Act, 1956. Ravi and Beas Waters Tribunal set up on 2 April 1986 submitted its report to Central government on 30 January 1987. In August 1987 a further reference was made to the Tribunal comprising a *suo-moto* reference by Central government and references received from governments of Punjab, Haryana and Rajasthan seeking explanation/guidance on certain points in the report. Two major inter-state river disputes have not yet been resolved. They relate to utilisation of waters of the Kaveri and the Yamuna.

INTERNATIONAL AGREEMENTS

INDUS WATERS TREATY

India and Pakistan signed Indus Waters Treaty on 19 September 1960, fixing and delimiting the rights and obligations of the two countries with regard to the use of the waters of the Indus river system. It came into force from 1 April 1960. As envisaged in the treaty, a permanent Indus Commission representing both the Governments, has been set up to establish cooperative arrangements for implementation. India and Pakistan have also taken up bilaterally at Government-to-Government level, the dispute regarding Tulbal Navigation Project on the Jhelum.

INDO-BANGLADESH JOINT RIVERS COMMISSION

Indo-Bangladesh Joint Rivers Commission was set up in July 1972 to: (a) maintain liaison between the participating countries in order to ensure the most effective joint efforts in maximising benefits from common river systems to both the countries; (b) formulate flood control works and recommend implementation of joint projects; (c) formulate detailed proposals on advance flood warnings, flood forecasting and cyclone warnings; (d) study flood control and irrigation projects so that water resources of the region can be utilised on an equitable basis for mutual benefit of the people of the two countries, and (e) formulate proposals for carrying out coordinated research on problems of flood control affecting both countries.

INDO-NEPAL SUB-COMMISSION ON WATER RESOURCES

Indo-Nepal Sub-Commission on Water Resources was set up in August 1988 to deal with all aspects of Indo-Nepal cooperation in multiple uses of water resources for mutual benefits. This Sub-Commission shall identify new programmes/projects for water resources development for cooperation between India and Nepal in specific sectors *viz.*, irrigation, water-logging and drainage, hydro-electric power generation, inland navigation, calculation of hydrological data, measures to prevent and reduce losses due to floods, flood forecasts and flood warning, environment safeguard measures and transfer of technology suited to requirements of both the countries.

EXTERNAL ASSISTANCE

Government has programmed to extend irrigation to the entire irrigable land area of 1,130 lakh hectare by the turn of this century. This gigantic task would reguire all out effort in the coming years. As against the total outlay of Rs 14,879 crore for major and medium irrigation up to the end of Sixth Plan, outlay of Rs 11,556 crore was made during Seventh Plan alone.

The country receives considerable assistance from World Bank group as well as other multilateral and bilateral agencies to augment internal resources for executing major, medium and minor irrigation and CAD projects. Major source of external assistance is World Bank. For nearly three decades World Bank has contributed about 410.61 crore dollars to irrigation sector. Presently, there are 22 on-going projects receiving an assistance of about 281.5 crore dollars.

Negotiations for a credit assistance of 11.4 crore dollars have been concluded with World Bank for implementation of National Water Management Programme. Its purpose is to increase productivity and farm income in existing irrigation schemes through a more reliable, predictable and equitable irrigation service. To begin with, projects in Andhra Pradesh, Karnataka and Tamil Nadu have been taken up under the Programme. Recently Government received very encouraging response for participation under this Programme from non-participating states, *viz.*, Madhya Pradesh, Bihar, Kerala, Uttar Pradesh, Gujarat, etc. Madhya Pradesh, Kerala and Bihar have already become its members.

Other international agencies such as United States Agency for International Development (USAID) and International Fund for Agriculture Development (IFAD) are also helping in development of irrigation in India. Since 1980, USAID has extended credit of 31.425 crore dollars for execution of medium/minor irrigation projects in Maharashtra, Madhya Pradesh, Rajasthan and Himachal Pradesh. IFAD has extended credit of 11.5 crore dollars independently or co-financed with World Bank for Rajasthan Canal Project, Madhya Pradesh Medium Irrigation Project, Uttar Pradesh Public Tubewells Project and Bhima Project in Maharashtra.

Two minor irrigation schemes (Saline Land Reclamation Project in Maharashtra and development of Water Control System for Diversification of Crops in Maharashtra) are receiving external assistance from European Economic Community (EEC) to the tune of ECU 350 lakh. Within the agreement, a separate bilateral agreement has been reached between India and the Netherlands to provide technical assistance for reclamation of saline lands in Konkan area of Maharashtra.

CENTRAL ORGANISATIONS

A number of Central organisations under the Ministry are engaged in the development of water resources. Two such organisations are Central Water Commission and Central Soil and Materials Research Station besides seven subordinate offices. One more subordinate organisation, namely, National Tank Development and Management Board is proposed to be set up.

CENTRAL WATER COMMISSION

Central Water Commission (CWC) is the national apex organisation in water resources development, charged with the responsibility of initiating, coordinating and furthering, in consultation with state governments concerned, schemes for control, conservation and utilisation of water resources for irrigation, flood control, hydro-power generation and navigation throughout the country. With its rich expertise built over the last four decades, CWC has developed considerable technological knowhow in planning, investigation, design, project appraisal and management of water resources development. It is sharing its knowledge and expertise with developing countries. The Commission's works are divided into four functional wings, *viz.*, water planning, designs and research, river management and planning and progress, supported by administration and coordinating wing.

The Commission has set up a national network of 564 hydrological observation stations. Since most of the stations were set up during 1960's and early 1970's data records are now available for nearly two decades. Besides guage and discharge observation, sediment flow measurements are carried out in selected 254 stations and water quality observation in selected 296 stations of the network. One hundred and twenty of water quality monitoring stations are in operation in the Ganga basin over the past two decades. During 1978-85 water quality monitoring with respect to pollution loads was conducted at 42 selected stations on the Ganga under a special scheme and a status report on water quality of the Ganga system was published in August 1987. Although the special scheme was closed, water quality monitoring with pollution has been continued in a limited way and a report on water quality trends in the river (1980-89) was brought out in January 1990.

The Commission advises state governments in planning for construction equipment and plants. Central training unit at Pune imparts in-service training to water resources engineers of the country in basin planning. The Commission also coordinates activities of water and land management institutes for promoting better water management of available resources. It brings out a quarterly magazine *Bhagirath* in English and Hindi for disseminating knowledge in water resources developmental activities for general public.

CENTRAL SOIL AND MATERIALS RESEARCH STATION

Central Soil and Materials Research Station, New Delhi is a premier organisation which deals with geomechanics and construction material problems relevant to river-valley projects' construction. It plays an active role in imparting knowledge to engineers involved in construction, designs, etc., by holding national level workshops with the help of UNDP experts.

SUBORDINATE ORGANISATIONS

The Ministry has the following seven subordinate organisations: (1) Central Water and Power Research Station, Pune; (2) Central Ground Water Board, Faridabad; (3) Farakka Barrage Project, Murshidabad; (4) Ganga Flood Control Commission, Patna; (5) Bansagar Control Board, Rewa; (6) Mahi Control Board, Udaipur, and (7) Sardar Sarovar Construction Advisory Committee, Vadodara. Setting up of National Tank Development and Management Board is under consideration.

CENTRAL WATER AND POWER RESEARCH STATION

Central Water and Power Research Station, Pune is devoted to applied and fundamental research in energy resoures and water-borne transport. Research activities of the Station are carried out in ten laboratories. Since 1979, it is the recognised regional laboratory of United Nations Economic and Social Commission for Asia and Pacific for studies related to inland waterways and water-borne transport. It's clientele is drawn fom Arab countries, Africa and South East Asia.

CENTRAL GROUND WATER BOARD

Central Ground Water Board is the national apex organisation to carry out and guide scientific development and management of ground water resources from national perspective. It handles all matters relating to hydrogeological surveys, exploration, assessment, development and scientific management of country's ground water resources. Main activities of the Organisation include macro-level hydrogeological surveys and investigations, deep exploratory drilling coupled with geophysical logging and pump tests to study hydrogeological features and nationwide monitoring of ground water regime and its quality through a network of hydrograph stations. Data generated from investigations undertaken by the Board provides a scientific base for preparation of hydrogeological maps, atlases, delineation of ground water worthy areas and formulation of ground water development schemes. Besides advising state governments on planning, financing and administration of ground water development schemes, the Board undertakes water balance studies and organises training of personnel of all levels and disciplines of its own and other state and Central government organisations including nominees of international organisations.

The Board had completed an area of 29.47 lakh sq km up to the end of December 1989 out of the total area of 32.9 lakh sq km of the country under hydrogeological surveys and plans to complete the remaining by

1991. For monitoring of ground water regime, the Board has established a national network of 11,000 hydrograph stations. Ground water levels are being monitored by these stations quarterly in January, April/May, August and November. Data is analysed to study impact of various input and output components on ground water regime. The Board is presently having a fleet of 92 different kinds of drilling rigs for gound water exploration and plans to complete this programme by 1995.

The Board, through its specialised cells, has initiated studies in the field of mathematical modeiling, data storage and retrieval and ground water pollution.

It has also provided assistance to National Drinking Water Mission for locating sites for drinking water and to suggest suitable and economic structures to tap ground water for drinking purposes in rural areas.

FARAKKA BARRAGE PROJECT

Farakka Barrage Project is designed to subserve the need for preservation and maintenance of Calcutta port by improving the regime and navigability of the Bhagirathi-Hooghly river system. The Bhagirathi, the feeder canal and the navigation lock at Farakka Barrage form part of the Haldia-Allahabad inland waterways for which an Act has been passed. Principal components of the Project are: (a) 2,240 metre-long barrage across the Ganga, designed to pass a flood discharge of 76,455 cumec or 27 lakh cusecs, with rail-cum-road bridge, the necessary river draining works and a head regulator on the right side; (b) 213 metre-long barrage across the Bhagirathi at Jangipur, designed to pass a flood discharge of 1,700 cumec or 60,000 cusecs; (c) feeder canal of 1,133 cumec or 40,000 cusecs carrying capacity and 38.38 km-long taking off from head regulator on the right side of the Farakka Barrage, tailing off into the Bhagirathi below Jangipur Barrage, and (d) navigation works such as locks, channels, shelter basins, navigation lights and other infrastructures. All principal works connected with the two barrages and the feeder canal have been completed. Rail-cum-road bridge over the Farakka Barrage provides a communication link between Assam, West Bengal and rest of India, most vital for north-eastern region.

Jangipur Barrage controls flow from the Ganga into the Bhagirathi and also prevents flow of the feeder canal into the Ganga. On completion of the feeder canal and its commissioning on 21 April 1975, water started flowing in the Bhagirathi-Hooghly channel fulfilling the prime objective of the project of providing regulated upland discharge. A vast tract of area around Ahiren near Jangipur town has remained inundated throughout the years due to lack of cross drainage. To bring back the affected area to conditions prevailing before the commissioning of the feeder canal by draining out accumulated water, works on inundation scheme on Pagla-Bansloi basin, have been taken up.

Navigation lock at Farakka was completed and tested successfully in May 1986. The lock was dedicated to the nation on 16 November 1987. With the commissioning of this lock, the first national waterway from Haldia to Allahabad has become a through route, to be further developed by Ministry of Surface Transport.

The Ganga has a tendency to erode its banks. A detailed scheme for strengthening of spurs and marginal embankment on the left bank upstream of the barrage has been sanctioned. The Ganga on the right bank upstream and downstream of the Bhagirathi off-take has been eroding its banks. Approval has been accorded for carrying out anti-erosion and other protection works in the vicinity of the Jangipur Barrage complex. Project works are expected to be completed by March 1992.

GANGA FLOOD CONTROL COMMISSION

Ganga Flood Control Commission, Patna established in April 1972, is primarily concerned with preparation of a comprehensive plan for flood control in the Ganga basin and arranging its implementation in corrdinated manner through the states in the basin. The Commission is responsible for technical scrutiny and examination of flood control, drainage, anti-water-logging-erosion and anti-erosion schemes estimated to cost Rs 60 lakh each or more in the basin.

BANSAGAR CONTROL BOARD

In pursuance of an inter-state agreement among Madhya Pradesh, Uttar Pradesh and Bihar, Bansagar Control Board was constituted in January 1976 with headquarters at Rewa by the Ministry for efficient, economical and early execution of Bansagar Dam and connected works on the Sone river (excluding canal and power systems which will be carried out by respective states).

MAHI CONTROL BOARD

Mahi Control Board, Udaipur was set up in 1971 in consultation with governments of Rajasthan and Gujarat to ensure early execution of Mahi Bajajsagar Project which is a joint venture of the two states. It is now in overall charge of Unit-I of the Project including technical and financial aspects.

SARDAR SAROVAR CONSTRUCTION ADVISORY COMMITTEE

Sardar Sarovar Construction Advisory Committee, Vadodara in Gujarat has been set up in accordance with the direction of Narmada Water Disputes Tribunal for scrutinising estimates, technical features, designs of Units I and III (dam and power portion) and annual works programme of the project in Gujarat, which is an inter-state project benefitting Gujarat, Madhya Pradesh, Maharashtra and Rajasthan. The Dam and power house complex is expected to be completed by 1998. The project will irrigate about 18 lakh hectare in Gujarat and provide 1,450 mw hydro-power for peaking.

STATUTORY BODIES

Three statutory bodies are functioning under the Ministry. These are: Narmada Control Authority, Brahmaputra Board and Betwa River Board.

NARMADA CONTROL AUTHORITY

Narmada Control Authority was set up in pursuance of the decision of the Narmada Water Disputes Tribunal. It started functioning from December 1980 and was further strengthened during 1987.

The Authority coordinates and directs Narmada basin development projects and takes such measures as are necessary or expedient for protection of environment and prepares schemes for welfare and rehabilitation of oustees and other affected persons.

BRAHMAPUTRA BOARD

Government constituted Brahmaputra Board under the Brahmaputra Act, 1980 with the specific object of preparing a master plan for control of flood and bank erosion and improvement of drainage of the Brahmaputra valley. Jurisdiction of the Board includes the Barak valley. The Act specifies that the Board shall carry out surveys and investigations and prepare project reports of multi-purpose project required for the master plan for control of floods and bank erosion along with development and utilisation of water resources of the valley for irrigation, hydro-power, navigation and other beneficial purposes.

BETWA RIVER BOARD

Rajghat Dam Project on the Betwa, a tributary of the Yamuna, is an inter-state project of Madhya Pradesh and Uttar Pradesh. In accordance with the inter-state agreement between the states in 1973, Betwa River Board was constituted under the Betwa River Board Act, 1976 for early execution of Rajghat Dam Project.

NATIONAL TANK DEVELOPMENT AND MANAGEMENT BOARD

In Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu, tank irrigation is practised on a large scale. There are about two lakh tanks in the country but neglect in their maintenance and lack of scientific application of water had resulted in reduction of irrigated area from 47.8 lakh hectare in 1962-63 to 30.71 lakh hectare in 1985-86. This tendency of reduction in irrigated area by tanks is continuing. Till now, there is no Central agency to monitor tank irrigation and issue necessary guidelines in planning, design, construction, etc. Setting up National Tank Development and Management Board in Central sector to guide state governments in various aspects of tank irrigation is therefore under consideration of Government.

REGISTERED SOCIETIES

Two registered societies, National Institute of Hydrology and National Water Development Agency function under Ministry of Water Resources.

NATIONAL INSTITUTE OF HYDROLOGY

National Institute of Hydrology, Roorkee is a premier national research organisation set up in 1978 to undertake, aid, promote and coordinate systematic and scientific work on all aspects of hydrology.

NATIONAL WATER DEVELOPMENT AGENCY

National Water Development Agency was established in 1982 to carry out studies and investigations of possible storage reservoir sites and interconnecting links in order to establish feasibility of proposals under national perspective plan. Detailed studies about quantum of water which is surplus in various peninsular rivers and which can be transferred to other basins after meeting reasonable needs of the basin state and feasibility reports of various components of schemes relating to peninsular rivers development, are being prepared. Studies are expected to be completed by the end of Eighth Plan.

PUBLIC SECTOR UNDERTAKINGS

Water and Power Consultancy Services (India) Limited was set up in June 1969 to project and channelise Indian expertise in power and water resources development and their utilisation. It offers consultancy services in all aspects of water resources development including hydro and thermal power, dams, integrated irrigation including downstream aspects, ground water, supply and treatment, inland waterways and navigation, hydrographic surveys, etc.

WATER RESOURCES DAY

Water Resources Day is observed in the country in April every year since 1986. In view of the ever increasing demand for water for various activities and its likely shortage in future, theme for 1990s is 'Water For The Future'. Main objective of observing the Day is to create awareness in public about water which is a national asset and holds the key to economic prosperity and stability of the nation.

17 Rural Development

SOON after independence, main thrust of development was on implementation of sectoral programmes, particularly those related to agriculture and allied sectors. Community Development Programme (CDP), launched in 1952, adopted a systematic, integrated approach to rural development. Over the years community development concepts led to delinking of sectoral departments from community development blocks. Concept of *Panchayati Raj* for decentralised administration was evolved by Balwantray Mehta Committee in 1957 which studied community development projects. Panchayati Raj institutions came up in the following decade. Efforts to strengthen these institutions continue.

Programmes like Food For Work culminated in National Rural Employment Programme (NREP), followed by Rural Landless Employment Guarantee Programme (RLEGP) with accent on landless labourers. For small and marginal farmers, special programmes like Small Farmers Development Agency were initiated. Minimum Needs Programme (MNP) was introduced in Fifth Five Year Plan.

Programmes including Hill Area Development were designed to tackle hostile environmental factors regarding development of such areas. In Drought-Prone Areas Programme (DPAP) and Desert Development Programme (DDP), emphasis was laid among other things on water and moisture conservation.

Several land reform Acts were enacted in respect of tenancy, distribution of surplus land, consolidation of land holdings and abolition of intermediary tenure. Effective implementation of land reforms through regular monitoring is ensured. Integrated Rural Development Programme (IRDP) launched in 1978-79 and extended all over the country in 1980-81 is a self-employment programme to raise the income generation capacity of target groups below poverty line.

Indira Awaas Yojana was added as an important component of rural employment programme. All wage employment programmes have been merged into *Jawahar Rozgar Yojana* (JRY). The setting up of Technological Mission for Drinking Water and Related Water Management in 1985 gave a new thrust to rural water supply programme.

IRDP and NREP have been twin instruments of direct attack on poverty. Considerable resources were committed for these programmes and this became an important plank of the growth strategy, namely, growth with social justice. Definite target for bringing down poverty ratio was fixed. By the end of Seventh Five Year Plan poverty ratio is expected to come down to 10 per cent by 1995.

A beginning has already been made to achieve the target of 50 per cent of outlays for rural sector during Eighth Plan. Share of rural sector in Central Plan has already gone up from 44 per cent in 1989-90 to 49 per cent in 1990-91. This is in pursuance of Government's commitment that 'an outlay of 50 per cent of investible resources in agricultural and rural sectors of economy will be ensured during Eighth Plan'. Likewise share of rural component in public sector outlays of states would also require further step-up. State governments have been approached to make an assessment of rural component in their plan outlays. In raising this component attention is particularly focused on agriculture, irrigation and watershed management, rural roads, rural health and education. The increase in resource flow to these sectors would also be in line with other major objectives of the plan *i.e.*, making more food available, generating more employment and incomes and contributing to development of human resources at a faster pace.

Along with Plan outlays, Non-plan expenditure would also be examined as maintenance of a larger number of activities particularly in social sectors such as health and education services and direct subsidies, specially on fertilisers and power, involving flow of budgetary resources in significant proportions. Waivers on farmers' loans announced recently could be regarded as a one-time capital subsidy designed to assist farmers particularly small and marginal ones, to wipe out their accumulated liabilities and start on a viable basis.

INTEGRATED RURAL DEVELOPMENT PROGRAMME

Integrated Rural Development Programme (IRDP) is a major instrument of Government strategy to alleviate rural poverty. Main objectives of IRDP are to raise families of the identified target group above poverty line and create substantial additional opportunities of self-employment in rural sector.

Strategy for IRDP during Seventh Plan has been two fold–first to consolidate gains made during Sixth Plan by providing supplementary dose of assistance to those beneficiaries who were not able to cross poverty line for no fault of their own, secondly to provide a package of assistance to identified beneficiaries in such a way that they cross poverty line with only one dose of assistance.

It is a Centrally-sponsored scheme with funds shared on 50: 50 basis between Centre and states. In case of UTs cent per cent funds are provided by Central government. The programme is being implemented through District Rural Development Agency (DRDA) and block level functionaries at the grass roots. At the state level a coordination committee headed by chief secretary monitors its overall implementation.

In Department of Rural Development, a Central Committee on IRDP and allied programmes of Training of Rural Youth for Self-Employment (TRYSEM) and Development of Women and Children in Rural Areas (DWCRA) is headed by secretary. Its main functions include framing and

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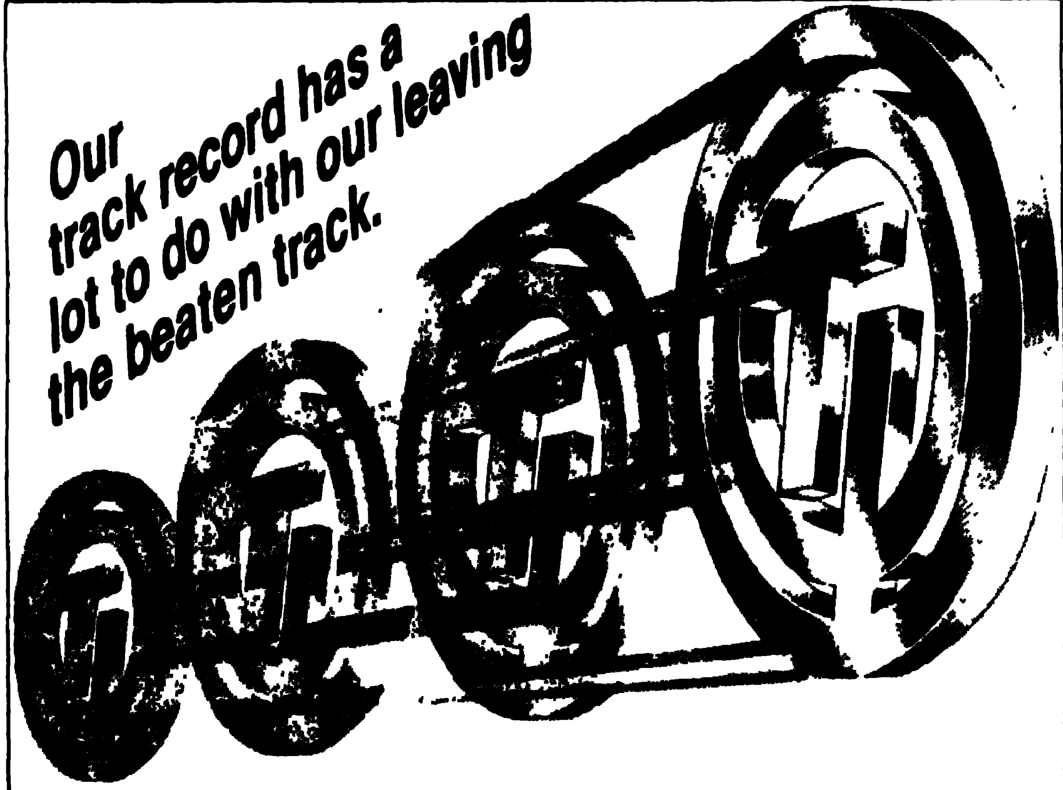
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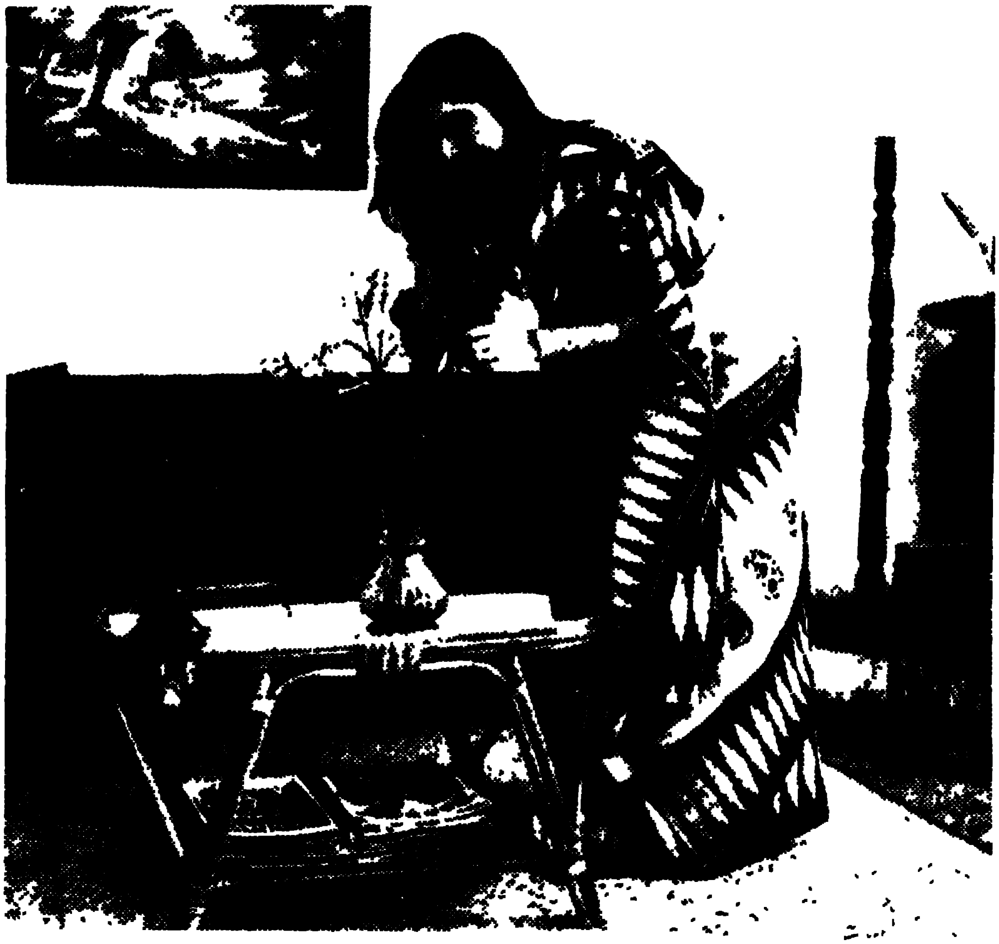

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KHADI AND VILLAGE INDUSTRIES COMMISSION

OBJECTIVES AND FUNCTIONS

The Khadi and Village Industries Commission (KVIC) is a statutory body created by an Act of Parliament (No 61 of 1956 and as amended by Act No 12 of 1987) Established in April 1957, it took over the work of the former All India Khadi and Village Industries Board

The broad objectives that the KVIC has set before it are -

- i) the social objective of providing employment,
- ii) the economic objective of producing saleable articles, and
- iii) the wider objective of creating self-reliance amongst the people and building up of a strong rural community spirit

FUNCTIONS:-

The KVIC is charged with the planning, promotion, organisation and implementation of programmes for the development of Khadi and other Village Industries in the rural areas in co-ordination with other agencies engaged in rural development wherever necessary

Its functions also comprise building up a reserve of raw materials and implements for supply of producers, creation of common service facilities for processing of raw materials as seminished goods and provision of facilities for marketing of KVI products apart from organisation of training of artisans engaged in these industries and encouragement of co-operative efforts amongst them To promote the sale and marketing of Khadi or products of village industries or handicrafts, the KVIC may forge links with established marketing agencies wherever necessary and feasible

The KVIC is also charged with the responsibility of encouraging and promoting research in the production techniques and equipment employed in the Khadi and village industries sector and providing facilities for the study of the problems relating to it, including the use of non-conventional energy and electric power with a view to increasing productivity, eliminating drudgery and otherwise enhancing their competitive capacity and to arrange for dissemination of salient results obtained from such reasearch

Further, the KVIC is entrusted with the task of providing financial assistance to institutions and persons through them engaged in the development and operation of Khadi and village Industries and guiding them through supply of designs, prototypes and other technical information

In implementing KVI activities, the KVIC may take such steps as to ensure genuineness of the products and to set standards of quality and ensure that the products of kahdi and village industries do conform to the standards

The KVIC may also undertake directly or through other agencies studies concerning the problems of Khadi or village industries besides experiments or pilot projects for the development of khadi and village industries

The KVIC is authorised to establish and maintain separate organisation for the purpose of carrying out any or all of the above matters besides carrying out any other matters incidental to its activities

ACHIEVEMENTS

Khadi and V Industries

Progress at a glance

Production, Employment and Earnings 1988-89

	Khadi	**Village Industries**	**Total**
Production (Rs crores)	235 35	1443 39	1678 74
Sales (Rs crores)	258 06	1598 15	1856 21
Employment Full time & Part time (lakh Persons)	14.04	28 83	42 87
Earnings (Rs in crores)	120 29	426 70	546 99
Participation of women	—	46%	
Share of SC/ST in the overall employment	12 80 lakhs		

Organisation (Numbers)
(a) State Boards-28
(b) Registered institutions-1172
(c) Cooperative Societies - 29,813
(d) Villages reached-1,00,000

Export
Khadi 1 39 crores
V I 3.66 crores
5 05 crores

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revision of guidelines ensuring their effective implementation. Sixth and Seventh Plan targets and achievements are indicated in table 17.1

TABLE 17.1 TARGETS AND ACHIEVEMENTS

Years	Physical target	Achievement (lakh)	Allocation (Rs crore)	Utilisation (Rs crore)	Credit mobilised	Investment (Rs crore)
Sixth Plan						
1980-81	30.07	27.27	250.55	158.64	289.05	447.69
81-82	30.07	27.13	300.66	264.65	467.59	732.24
82-83	30.07	34.55	400.88	359.59	713.98	1,073.57
83-84	30.54	36.85	407.36	406.09	773.51	1,179.60
84-85	30.27	39.82	407.36	472.20	857.48	1,329.68
Total	151.02	165.62	1,766.81	1,661.17	3,101.61	4,762.78
Seventh Plan						
1985-86	24.70	30.61	407.36	441.10	730.15	1,171.25
86-87	35.00	37.47	543.83	613.38	1,014.88	1,628.26
87-88	39.64	42.47	613.38	727.44	1,175.35	1,902.79
88-89	31.94	37.72	687.95	768.47	1,231.62	2,000.09
89-90	20.09	31.74[1]	747.75	800.00[1]	1,350.00[1]	2,150.00
Total	160.38	180.00	3,000.27	3,350.39	5,502.00	8,852.00

[1] Anticipated achievement for 1989-90.

Impact of the programme has been evaluated through research conducted by independent institutions and also through concurrent evaluation studies (CES). According to CES of January-December 1987 about 60 per cent of old families crossed poverty line of Rs 3,500 and 13 per cent the revised poverty line of Rs 6,400. However, about 78 per cent of the families had incremental income. Nearly 25 per cent of the assisted families belong to destitutes (from 1 to 1,225 rupees) and 46 per cent to very very poor group (Rs 2,266-3,500).

During Seventh Plan 18 lakh families were to be assisted with a total investment of Rs 8,852.35 crore as against 165 lakh families with an investment of Rs 4,762.78 crore in Sixth Plan.

Over 45 per cent went to SC/ST families as against the target of 30 per cent. Coverage of women had increased from nine per cent in 1985-86 to 25 per cent under IRDP in 1988-89. Major impact of the programme was that it benefited the poorest and the most deprived sections of society, as also women, in such a large number.

Subsidy available to SC families under IRDP has now been raised to 50 per cent and monetary ceiling to Rs 5,000. This will benefit about 8.5 lakh more SC families in 1990-91.

NATIONAL SCHEME OF TRAINING OF RURAL YOUTH FOR SELF-EMPLOYMENT

National Scheme of Training of Rural Youth for Self-Employment (TRYSEM) was launched as a Centrally-sponsored scheme on 15 August 1979. Its main thrust is on equipping rural youth in the age group of 18-35 years with necessary skills and technology to take up vocations of self-employment in agriculture and allied activities, industry, services and business. Simultaneously, another scheme for strengthening of infrastructure of training institutions was also introduced with Central assistance.

Liberalisation of norms for expenditure under recurring assistance, greater emphasis on systematic marketing and exploring possibility of setting up groups for the manufacture/assembly of non-traditional items for which there is good demand in the market, are some of the steps taken to improve the implementation of the scheme. About 17.94 lakh rural youth have already been trained.

DEVELOPMENT OF WOMEN AND CHILDREN IN RURAL AREAS

Main objective of the programme for the Development of Women and Children in Rural Area (DWCRA) is to improve the lot of rural women through the creation of income-generating activities in a district. Districts to be covered are selected keeping in view low literacy rate and high infant mortality rate. It envisages formation of groups of 15-20 rural women each for carrying on income-generating activities. Each group is sanctioned a revolving fund of Rs 15,000. In case of states, the amount is shared equally by Centre, state government and UNICEF, while in union territories, the Central government bears Rs 10,000 per group and balance is borne by UNICEF. UNICEF also bears the expenditure on staff component which is fully reimbursed. The programme achieved considerable progress during 1988-89 with the formation of groups with 98,636 women members.

RURAL EMPLOYMENT

Rural unemployment and under-employment which particularly affect the poorest segments of rural population have been major contributory factors to high incidence of poverty in rural areas, Various pilot projects were, therefore, launched to step up rural employment. Programmes like Pilot Intensive Rural Employment Programme (PIREP) were started during Fourth Plan. In October 1980 National Rural Employment Programme (NREP) was launched as a Centrally-sponsored scheme on 50: 50 sharing basis between Centre and states with the three fold objectives of generating additional gainful employment opportunities, creating durable community assets and improving overall quality of life in rural areas. In 1983, it was followed by Rural Landless Employment Guarantee Programme (RLEGP) as a cent per cent Centrally-sponsored scheme. The objective was to improve and expand employment opportunities particularly for rural landless labourers and provide gaurantee of employment to atleast one member of every rural landless labour household up to 100 days in a year.

During Sixth Plan period, Rs 1,874 crore was spent on NREP in both Central and state sectors, creating over 17,750 lakh mandays work. In Seventh Plan, Rs 3,092 crore was spent creating 14,780 lakh mandays work. Under RLEGP, Rs 394 crore and Rs 2,640 crore were spent during Sixth and Seventh Plans creating work of 2,630 lakh mandays and 11,500 lakh mandays respectively.

Since 1 April 1989, NREP and RLEGP have been merged into one single rural employment programme to be known as Jawahar Rozgar Yojana (JRY). Total provision for this Yojana for the year 1989-90 was Rs 2,623.08 crore to be shared between Centre and states on 80:20 basis.

Primary objective of the programme is generation of additional gainful employment for unemployed and under-employed persons in rural areas. Besides, secondary objectives are: (i) creation of productive community assets for direct and continuing benefits to poverty groups and strengthening rural economic and social infrastructure which will lead to rapid growth of rural economy and steady rise in income levels of rural poor and (ii) improvement in overall quality of life.

Allocations to states under the new programme are to be made entirely on the basis of incidence of poverty. Out of the allocations made to states, resources are to be given to districts on the basis of agricultural labourers as percentage of the main workers in rural areas, percentage of SC/ST rural population to total rural population and inverse of agricultural productivity on 20:60:20 respectively. Resources under the Yojana are released direct to DRDAs/*Zila Parishads*. States are also required to release their share to DRDAs/Zila Parishads in full within one month of release of Central assistance. Not loss than 80 per cent of funds allocated to each district after earmarking six per cent for Indira Awaas Yojana (pertaining to construction of houses for SC/ST and freed bonded labourers) are to be distributed to village *panchayats* in the district. Distribution of resources to village panchayats from the district is made on the basis of population of each village panchayat.

Village panchayat is free to choose any item of works which is identified by it in consultation with village assembly and is of use to the village community. Preference is given to works which create economically productive assets. During 1989-90, an amount of Rs 2,100 crore including value of foodgrains had been released to districts as Central share. Up to September 1989 an expenditure of about Rs 550 crore had been incurred under the programme and employment of about 2,320 lakh mandays generated against an annual target of 9,120 lakh mandays.

PANCHAYATI RAJ

Panchayati Raj institutions are in existence almost in all states and [illegible] a territories with variations in structural pattern. Generally, [illegible] the above system involves a three-tier arrangement–village level, block level and district level. The first tier at village level is commonly known as *Gram Panchayat*, the second tier at block level as *Panchayat Samiti* and the third tier at district level as *Zila Parishad*, except in some states/union territories. However, the second tier is known as *Mandal Panchayat* in Andhra Pradesh, *Taluka Panchayat* in Gujarat, Taluka Development Board in Karnataka, *Janapad Panchayat* in Madhya Pradesh, Panchayat Union in Tamil Nadu, *Kshetra Samiti* in Uttar Pradesh and *Anchal Samiti* in Arunachal Pradesh. Similarly, the third tier is called *Mohkuma Parishad* in Assam and District Development Councils in Karnataka and Tamil Nadu.

Tenure of Panchayati Raj institutions ranges from three to five years. These institutions are responsible for promotion of agriculture, rural industries, provision of medical relief, maternity, women and child welfare, maintaining common grazing grounds, village roads, tanks, wells, sanitation and execution of other socio-economic programmes. In some places they also provide primary education and collect land revenue. Today, gram panchayats are involved for identification of beneficiaries in anti-poverty programmes for IRDP and execution of other rural development programmes like JRY. There are about 2.20 lakh gram panchayats, 4.5 thousand panchayat samitis and 357 zila parishads (including superseded institutions).

To sum up, panchayats, cooperatives and schools are the basic institutions at village level for carrying out various programmes of rural development.

DROUGHT-PRONE AREAS PROGRAMME

Drought-Prone Areas Programme (DPAP) was started as an integrated area development programme in 1973 which was a long term measure for restoration of ecological balance and optimum utilisation of land, water, livestock and human resources and to mitigate effects of drought. It aims at: (a) promoting a more productive dryland agriculture on the basis of soil and water resources and agro-climatic conditions of areas with suitable cropping pattern; (b) development and productive use of water resources; (c) soil and moisture conservation including promotion of proper land use practices and water harvesting; (d) afforestation including farm forestry and pasture development, and (e) livestock development including pasture and fodder resources. DPAP is being implemented in 615 blocks in 91 districts of 13 states from 1985-86 covering about 5.36 lakh sq km area which is about 19 per cent of the geographical area of the concerned states. It covered about 7 to 7.5 crore people which is about 12 per cent of the population in such states.

DPAP continues to be Centrally-sponsored scheme and allocation is shared equally by Centre and states. During Sixth Plan an expenditure of Rs 337.41 crore was incurred on this programme as against the allocation of Rs 404.30 crore. Central outlay of Rs 237 crore was made for this programme in Seventh Plan. During first four years of Seventh Plan an amount of Rs 169.08 crore had been released to states as Central share and an expenditure of Rs 362.19 crore incurred.

DESERT DEVELOPMENT PROGRAMME

Desert Development Programme (DDP) was started in 1977-78 with the objective of controlling desertification, restoring ecological balance and creating conditions to improve economic level of the people in desert areas. These objectives are sought to be achieved through activities such as: (a) afforestation with special emphasis on shelter-belt plantation, grassland development and sand dune stabilisation; (b) development and productive use of water resources, and (c) construction of water harvesting structures and development of agriculture and horticulture, etc. It covers both hot and cold desert areas in 131 blocks of 21 districts in five states *i.e.*, 119 blocks of 17 districts in Gujarat, Haryana and Rajasthan hot deserts and 12 blocks of four districts in Himachal Pradesh and Jammu and Kashmir cold deserts. The programme covers a total area of about 3 62 lakh sq km constituting 42 per cent of total geographical area and 150 lakh persons who are about 16 per cent of total population of these states

This programme was initially started as a Central sector scheme. From 1979-80 to the end of Sixth Plan it remained a Centrally-sponsored scheme with equal sharing of funds. The beginning of Seventh Plan saw it again converted into a Central sector scheme with cent per cent funding by Central government. During Sixth Plan, an expenditure of Rs 73.55 crore was incurred against the allocation of Rs 94.85 crore In Seventh Plan, allocation made was Rs 245 crore. During first four years of Seventh Plan, Central funds worth Rs 141.90 crore were released and expenditure of Rs 145.16 crore incurred Table 17 2 gives physical achievements of DPAP and DDP.

TABLE 17.2 PHYSICAL ACHIEVEMENTS[1]

Sector	Drought-prone Areas Programme (DPAP) ('00 hectare)	Desert Development Programme (DDP) ('00 hectare)
1. Area treated under soil and moisture conservation	22,241	731
2. Irrigation potential created	8,175	241
3. Area covered under forestry and pasture development	12,919	2,099

[1] For the period till March 1988.

To facilitate drought-proofing and help check advancement of desert, a minimum of 75 per cent of the allocation has been prescribed for the above three core activities.

A National Commitee has been set up under the chairmanship of Member (Agriculture), Planning Commission, with wide-ranging terms of reference for appraisal of these two programmes.

LAND REFORMS

Land reforms have remained one of the major policies for rural and economic development ever since the inception of planning process. Old agrarian structure was not very conducive to modernisation of agriculture and needed to be replaced by a more egalitarian social structure. Land reforms programme has, therefore, been designed to break old feudal socio-economic structure to provide greater fillip to modernisation of agriculture and promote agricultural productivity. It aims at the largest possible number of poor farmers and agricultural workers in the mainstream of economic development. It also helps raise the status of weaker sections and gives them a sense of belonging to the mainstream of social life. This programme has thus been rightly viewed not only as an economic development measure but also as an measure of social uplift. Seventh Plan views it as an intrinsic part of anti-poverty strategy. Intermediary tenures have been abolished. As a result more than 200 lakh tenants have been brought in direct contact with the State. Besides, a large part of an estimated 60 lakh hectare of waste, fallow and other classes of land vested in the State have been distributed to landless and marginal landholders. However, in some states some intermediary tenures still remain to be abolished while residual work after abolition is also pending in some states.

TENANCY REFORMS

Legislative provisions have been made in most states providing ownership rights to tenants/security of tenure to tenants/sub-tenants/share-croppers. Fixation of rents payable by tenant and prohibition of eviction except on specified grounds further strive to safeguard their interests. Seventy seven lakh tenants have been conferred ownership rights in respect of 56 lakh hectare of land.

Several states enacted land ceiling laws in 50s and 60s. As a result of this, more than 9.93 lakh hectare of land was taken over by the State and out of this 7.5 lakh hectare distributed to landless poor. Land ceiling laws were subsequently re-enacted by states in conformity with national guidelines of 1972. Till September 1989, 29.3 lakh hectare was declared surplus in old and revised ceiling laws. Of this, possession of 24.86 lakh hectare has been taken and 18.55 lakh distributed to 42 lakh landless agricultural labourers and other eligible persons.

Implementation of land reforms measures is a difficult task as it seeks to change socio-economic relations in rural society.

Despite legislative and administrative measures to insulate land reforms cases from being challenged in courts, parties have found ways to delay implementation. Almost 5.35 lakh hectare is under litigation. This land is not, therefore, presently available for distribution. States have been urged to take legislative and administrative measures to expedite pending cases. Protection has also been given to land laws in the Constitution. Of 202 laws in the Ninth Schedule, 169 pertain to land reforms.

FINANCIAL ASSISTANCE

Much of the land distributed under ceiling laws is of poor quality. Assignees have to make heavy investment for efficient cultivation. As such, financial assistance is being given since 1975-76 under a Centrally-sponsored plan scheme. Assignees are also accorded priority for benefits admissible to them under other programmes, *viz.* IRDP and JRY. So far financial assistance by way of grant worth Rs 39.64 crore has been released to different states/union territories. Presently rate of assistance under the scheme is Rs 2,500 per hectare.

LAND RECORDS

Correct and up-to-date land records are an essential pre-condition for effective implementation of land reforms measures, particularly for security of tenure to tenants and share-croppers. It is also necessary to ensure smooth flow of credit and agricultural inputs to landholders. In most of states, records are updated through annual crop register. Revisional survey and settlement operations are on in Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Kerala, Madhya Pradesh, Meghalaya, Orissa, Sikkim, Tripura and West Bengal. Monitoring of implementation of land reforms has been intensified with emphasis on early completion of land records. A Centrally-sponsored scheme for revitalising revenue administration and updating land records is being implemented. This is done with primary purpose of strengthening machinery for survey and settlement including use of new technology such as photomapping, aerial survey, mechanisation of land records, restructuring of revenue machinery and training infrastructure. This has been taken up in Bihar and Orissa in the first phase. A scheme on pilot project for computerisation of land records is also being taken up in seven states to evolve a future policy about this during Eighth Plan.

CONSOLIDATION OF HOLDINGS

Highly fragmented agricultural holdings impede rationalisation of agriculture and adequate investment of capital and inputs. Consolidation of such holdings is thus an important measure to boost efficiency and economy in agriculture. It also provides opportunity for planned development of villages. Legislative provisions have been made in most of states to implement this scheme. Till now 590.9 lakh hectare has been consolidated, bulk of it being in Maharashtra, Uttar Pradesh, Haryana, Punjab, Madhya Pradesh, Gujarat, Rajasthan and Karnataka.

LAND ACQUISITION

The Land Acquisition Act, 1894 is the basic law for acquisition of land for public purposes and companies. This Act has been comprehensively amended by the Land Acquisition (Amendment) Act, 1984. It provides a maximum time limit of three years of completion of land acquisition proceedings, leading to the award to be given by district collector.

RURAL WATER SUPPLY PROGRAMME

Supply of drinking water is primarily the responsibility of state governments. It constitutes an important part of Minimum Needs Programme (MNP) in the State plan. Centre supports the programme with fully Centrally-sponsored Accelerated Rural Water Supply Programme (ARWSP). Besides, a National Mission on Drinking Water (NMDW) in villages has been launched. All the three programmes aim at achieving the goal of International Drinking Water Supply and Sanitation Decade by providing cent per cent rural water supply by 1990. NMDW has a clear goal of covering residual problem villages (1.62 lakh at the beginning of Seventh Plan) by 1990. It would provide low cost solutions to identify problems associated with supply of safe drinking water through the application of scientific and technological inputs. Some 55 pilot projects as mini mission areas covering various states and union territories and five sub-missions were taken up during Seventh Plan. Priority has been given to hard-core problem villages spilled over from Sixth Plan followed by those which were subsequently identified and then partially covered villages. A problem village has no source of safe drinking water within a distance of 1.6 km or within a depth of 15 metres. Other problem villages are those where available water has excessive salinity, iron, fluoride or other toxic elements or where diseases like cholera, guineaworm, etc., are endemic.

After covering problem villages, water supply facilities are proposed to be extended to villages as per liberalised norms *i.e.*, within a distance of 0.5 km, enhance present norm of water supply from 40 litres to 70 litres per capita per day and provide one source (tubewell with hand-pump or stand-post) for a population of 150 against the existing norm of 250-300 persons. Priority is being accorded for coverage of SC/ST habitations.

States have been directed to allocate funds from ARWSP in the same proportion as earmarked under Special Component Plan and Tribal Sub-Plan. At the commencement of Seventh Plan, 1,61,722 problem villages remained to be covered with safe drinking water facilities. 1,48,958 villages have already been covered so far, 12,764 villages were left. Remaining 6,358 villages are likely to spill over to Eighth Plan. Of 16,628 villages 3,252 had been covered up to September 1989.

Seventh Plan outlay for Central assistance to states/UTs under ARWSP and other schemes was Rs 1,207.32 crore. Of this Rs 75 crore was earmarked for mini missions and sub-missions. Another Rs 75 crore was earmarked out of RLEGP for water harvesting structures/water conservation schemes under the Mission. Seventh Plan outlay under State sector MNP was Rs 2,253.25 crore. In 1989-90, Rs 410 crore were allocated for NMDW *i.e.*, ARWSP, mini missions and sub-missions and Rs 598.85 crore under MNP. Against Rs 410 crore allocation, Rs 280.52 crore had been released up to September 1989 and Rs 191 crore reportedly spent up to this period. Out of MNP provision, Rs 181.06 crore were spent up to the same period.

Through NMDW science and technology inputs have been harnessed in a big way including remote sensing and satellite imagery, geophysical investigations, etc., to effect scientific source finding. Steps have also been initiated to transfer technologies of water purification from laboratories to factory floors and then on to the field for removing salinity, excess iron and fluoride.

CENTRAL RURAL SANITATION PROGRAMME

Central Rural Sanitation Programme (CRSP) provides rural sanitation facilities with a view to improving quality of life and upholding dignity and privacy of rural women. It also aims to supplement other programmes on sanitation under RLEGP, NREP, etc., by construction of sanitary latrines for individual households. Under this programme, entire cost of construction of such latrines for SC/ST is borne by Government. For other IRDP-assisted families, part of cost is provided as subsidy, while balance is met by beneficiaries themselves. Considering its past performance it is proposed to restructure the programme to make it more popular and acceptable. Community involvement and social communication will be built into the programme in a big way.

During 1989-90, Rs 20 crore were allocated under CRSP. Provision under state/UT sector MNP for rural sanitation was Rs 13.16 crore. No amount had been released during 1989-90 under CRSP as the programme was being reviewed. Funds will be released to states after revised policy guidelines.

RURAL ROADS

Development of rural roads forms part of Minimum Needs Programme in state sector. Outlays for it are provided in the plans of states/UTs. In Sixth Plan provision was made under MNP to connect by 1990 all villages with population over 1,500 and 50 per cent of villages with population between 1,000-1,500. Cluster approach adopted for difficult terrains like hilly, tribal, desert and coastal areas during Sixth Plan, was revised in Seventh Plan as: (a) Hill Areas: (i) Cent per cent linkage during 10 year time frame to villages with a population over 500, and (ii) 50 per cent linkage to villages with a population between 200-500 during the same period, and (b) Tribal, Coastal and Desert Areas: (i) Cent per cent linkage during 10 year time frame to villages with a population over 1,000, and (ii) 50 per cent linkage to villages with a population between 500-1,000 during the same period.

In Seventh Plan, an outlay of Rs 1,729,40 crore had been made in state plans for the programme. Outlays under NREP and RLEGP (now JRY) would also be used as supplementary funds for construction of rural roads.

Cent per cent grant-in-aid to states for development of roads in tribal areas was also being implemented since Sixth Plan. Against the provision of Rs 14 crore during Seventh Plan period, Rs 10.32 crore had been released during first four years of the Plan. Considering the fact that tribal roads should be the responsibility of state governments, Government discontinued the scheme from 1987-88. Accordingly, funds were to be provided during the rest of the Seventh Plan period only for meeting the committed liabilities.

Besides this, a scheme for road construction in special problem areas (dacoit infested districts) of Uttar Pradesh, Madhya Pradesh and Rajasthan is also being implemented from 1985-86. Expenditure on works is shared between Centre and states on 50:50 basis. No reference was made of this scheme in Seventh Plan document and as such funds are being provided on year to year basis. Works costing over Rs 101.52 crore have been sanctioned so far under the scheme and Rs 28.36 crore released during last four years by Government as its share. Outlay for 1989-90 was Rs 13 crore.

TRAINING

Thrust given to rural development particularly poverty alleviation programmes in successive Five Year Plans calls for cadres of capable, skilled and trained personnel for effective implementation of these programmes. Training of personnel has, thus, a considerable bearing on administrative and organisational efficiency. The Department has a three-tier institutional set-up for training a large number of functionaries involved in the process of poverty alleviation. National Institute of Rural Development continues to play important role as an apex institute for conducting research and training programmes. Twenty two state centres were established/ strengthened in Seventh Plan to meet training needs of functionaries at regional level. Besides,77 existing training centres and 13 new centres were set up/strengthened to cater to the training needs of core functionaries at sub-regional level.

CAPART

Council for Advancement of People's Action and Rural Technology (CAPART) was registered under the Societies Registration Act, 1860 on 1 September 1986 with headquarters in New Delhi with the merger of People's Action for Development India (PADI) and Council for Advancement of Rural Technology (CART). It aims at encouraging, promoting and assisting voluntary action for enhancement of rural prosperity.

In pursuance of these objectives, CAPART makes available financial assistance to voluntary organisations under the following schemes: (i) promotion of voluntary schemes and social action programmes (PC); (ii) development of women and children in rural areas (DWCRA); (iii) accelerated rural water supply programmes (ARWSP); (iv) Central rural sanitation programme (CRSP); (v) organisation of beneficiaries of anti-poverty programme (OB); (vi) integrated rural development programme (IRDP); (vii) Jawahar rozgar yojana (JRY), and (viii) advancement of rural technology scheme (ARTS).

Its funds mainly comprise grants by the Department. The Society can, however, obtain grants from various Central and state government departments and also accept donations and contributions from other sources. CAPART had sanctioned 2,744 projects worth Rs 82 crore up to 30 October 1989.

AGRICULTURAL MARKETING

Directorate of Marketing and Inspection (DMI) under the Department advises Central and state governments on agricultural marketing problems. It enforces compulsory quality control on 41 agricultural commodities before their export. Besides, a number of important commodities are graded under *Agmark* for internal consumption. These include cotton, vegetable oils, *ghee*, cream, butter, eggs, rice, wheat flour, *besan*, jaggery, *bura*, curry powder, honey, ground spices, potatoes, fruits, etc. In all, grade specifications under Agmark have been formulated for 142 commodities.

Twenty two regional laboratories have been set up to ensure purity and quality of Agmark products. Central Agmark Laboratory at Nagpur functions as the apex body. Laboratories at Nagpur, Bombay, Calcutta and Madras are equipped with biological testing units. A large number of producer-level grading centres have also been established in various states to help farmers in getting price commensurate with quality. Agricultural commodities worth Rs 990.39 crore were graded at 958 producer-level grading centres during 1988-89.

Regulation of markets is yet another important function of agricultural marketing. It is done by state governments, while DMI renders advice in framing market legislation and its enforcement. There were 6,118 regulated markets in the country by March 1989.

REGULATION OF MARKETS

DMI is implementing a scheme for providing financial assistance to primary and secondary rural markets to develop infrastructural facilities. This scheme has acted as a catalyst to induce state governments in taking up market development programme. Central assistance worth Rs 75.13 crore had been provided to 2,833 primary, 607 secondary and 161 rural wholesale markets. The Directorate is also extending financial assistance to selected regulated markets for providing grading facilities at producer's level for cash crops such as tobacco, jute, cotton, groundnut and cashewnut. An amount of Rs 5 lakh 70 thousand was granted under the scheme during 1987-88.

The scheme of marketing research and surveys has two programmes, namely, (i) market research and planning and (ii) market planning and design. DMI carries out countrywide market surveys on important agricultural, horticultural and livestock commodities to identify and study problems of agricultural marketing. It also suggests remedial measures. Surveys of a number of wholesale markets for fresh fruits and vegetables have been carried out by Market Planning and Design Centre (MPDC) to make suggestions for their development and improvement. MPDC also gives technical assistance in preparation of state master plans for development of agricultural produce market.

COTTON CLASSING SCHEME

A cotton classing centre was established at Surat in 1969-70 as a pilot project to provide facilities for grading of cotton lint to growers, cooperatives and others. With the success of this pioneer scheme, five more such centres have been established–one each in Maharashtra (Nagpur), Karnataka (Raichur), Tamil Nadu (Tirupur), Madhya Pradesh (Khandwa) and Punjab (Abohar).

COLD STORAGE AND MEAT PRODUCTS

The Cold Storage Order, 1980, enforced by the Directorate, aims at developing cold storage industry in a planned manner, ensuring hygienic conditions and proper refrigeration and rendering technical guidance for scientific preservation of food-stuffs. There were 1,272 storages with capacity of about 38.38 lakh cu mt licensed under the Order by September 1989. Besides, a large number of cold storages have been licensed by Haryana, Punjab, Uttar Pradesh and West Bengal under their own Acts/Orders. It implements the Meat Food Products Order, 1973 to ensure quality control of meat products for human consumption. Under the Order, 230 licences were granted till September 1989. It also conducted seven regular training courses for the benefit of employees of state government regulated market committees, cooperative societies and various commodity boards/corporations. During the year 1988-89, 384 personnel were trained in various disciplines of agricultural marketing. Producers and consumers are constantly exposed to the advantages of products marked Agmark through various media, trade fairs and seminars. The Directorate also brings out a quarterly, *Agricultural Marketing*.

Department of Rural Development is also implementing a scheme to set up rural godowns with a view to creating a network of such godowns in states/UTs primarily to take care of storage requirements of agricultural producers, particularly small and marginal farmers. Central assistance worth Rs 29.58 crore was provided to various states/ UTs for construction of 4,252 rural godowns with storage capacity of 22.70 lakh tonnes by March 1989.

MONITORING

Monitoring is an important tool for ensuring proper implementation of any project/programme. It helps in ascertaining that the project is progressing according to plan and all physical and financial inputs and other requisite supportive activities are available according to schedules. Considering this, Department of Rural Development developed comprehensive system of monitoring in respect of major programmes like JRY, IRDP, RWSP, DPAP and DDP. Physical and financial achievements under each programme are being obtained from state/district and implementing agencies at regular intervals on prescribed formats. Performance of various programmes is reviewed on these reports and corrective as well as supportive measures are taken to improve their implementation

CONCURRENT EVALUATION

Besides monitoring performance of various rural development programmes through periodical returns and visits by senior officers to field, the Department also conducts concurrent evaluation studies (CES) in respect of major rural development programmes. This is done with the help of independent reputed research institutions to ascertain areas of concern and streamline and improve the pace of implementation. First round of CES of IRDP was taken up from September 1985 to October 1986 and second round from January 1987 to December 1987 with the help of reputed research institutions. Findings of these surveys were found very useful which helped planners/implementors to restructure the programme for its effective implementation Third round in the series was started from January 1989 again for a period of 12 months. CES of Rural Water Supply Programme was also undertaken from October 1986 to September 1987 (to assess drinking water situation in rural areas) and CES of NREP from November 1987 to October 1988. Similar CES will also be taken up in future in respect of JRY and other rural development programmes

COMPUTERISATION OF RURAL INFORMATION

For timely flow and proper management of immense data generated under major rural development programmes and thereby improving their monitoring system, Department of Rural Development had started in 1985, a scheme of computerised rural information system (CRISP) at DRDA level. It was decided to set up a mini computer cell in DRDAs, using funds available under administrative infrastructure. Necessary training was provided to DRDA staff for operation of computers. In most of DRDAs, computers have been installed and become operationalised. Necessary steps are being taken to instal computers in remaining DRDAs soon. Software developed by NIC for pilot project of CRISP is being used for computerisation of data on major programmes. In view of the expansion of JRY and emerging needs of Panchayati Raj system, appropriate software is also being developed.

18 Food and Civil Supplies

MANAGEMENT of India's food economy and monitoring of prices and availability of essential commodities lie with Ministry of Food and Civil Supplies, with its two wings Department of Food and Department of Civil Supplies.

Department of Food is responsible for complex and large scale operations such as procurement of foodgrains, their timely movement to deficit regions, building-up and maintenance of buffer stocks and creation of adequate scientific storage capacity. Production, stock and price level have to be closely monitored, stock releases and imports suitably timed and regulated to maintain adequate availability at reasonable prices.

Department of Civil Supplies monitors the fluctuation of prices and availability of essential commodities, administration of the Prevention of Blackmarketing and Maintenance of Supplies of Essential Commodities Act, 1980, public distribution system, protection, consumer cooperatives, integrated management of supply prices and distribution of *vanaspati,* oilseeds, vegetable oils, cakes and fats, control of future trading and matters relating to weights, measures and standards. It is assisted by Directorate of Weights and Measures; Directorate of Vanaspati, Vegetable Oils and Fats, Bureau of Indian Standards, New Delhi; Forward Markets Commission, Bombay and Hindustan Vegetable Oils Corporation Ltd., New Delhi.

FOOD

PRODUCTION

Production of foodgrains from 1985-86 to 1988-89 is given in table 18.1.

TABLE 18.1 PRODUCTION OF FOODGRAINS

(Lakh tonne)

Crop	1985-86	1986-87	1987-88	1988-89
Rice	638.3	605.6	568.6	706.7
Wheat	470.5	443.2	461.7	540.0
Coarse Cereals	262.0	268.3	263.6	318.9
Pulses	133.6	117.1	109.6	137.0
Total	1,504.4	1,434.2	1,403.5	1,702.6

PROCUREMENT OF FOODGRAINS

Procurement of foodgrains .at support prices ensures stability in farm prices. Table 18.2 gives an idea about the quantum of procurement of main food crops, *viz.*, rice and wheat since 1986-87 marketing season.

TABLE 18.2 PROCUREMENT OF FOODGRAINS

(Lakh tonne)

	1986-87	1987-88 (P)	1988-89 (P)	1989-90
Rice[1]	91 56	68 94	76 87	98.95[3]
Wheat[2]	105 36	78 80	65 35	90.00[4]

1: Market season October-September
2 Market season April-March.
3. As on 9 March 1990.
4. As on 31 January 1990
P-Provisional.

BUFFER STOCK

Building-up and maintenance of buffer stocks ensures stability in supplies and prices throughout the year. Government has decided that size of buffer stocks to be maintained by public agencies should be 100 lakh tonnes—50 lakh tonnes each of wheat and rice. Buffer stock will be over and above the operational stock which on different dates of the year would range between 65 lakh tonnes (lowest) on 1 April and 114 lakh tonnes (highest) on 1 July.

STOCK POSITION

On 1 January 1990, stocks of foodgrains with public agencies stood at over 121 lakh tonnes as against 94.8 lakh tonnes on the same date last year. Level of stocks was the highest on 1 January 1986.

Food Corporation of India and state agencies achieved an all-time record in rice procurement with a total of 98.95 lakh tonnes of rice as on 9 March 1990 against the earlier record of 98.76 lakh tonnes procured in 1985-86 season. The current marketing season ends on 30 September 1990. With the estimated procurement to be around 108 lakh tonnes, the target of 100 lakh tonnes would be surpassed during the season. This will enable Government to meet reasonable demands of public distribution system and also replenish buffer stocks of rice which were depleted due to lower procurement and higher releases for distribution.

Procurement of wheat during 1988-89 (9 February 1990) was 90.04 lakh tonnes. It was substantially higher than over 65 lakh tonnes up to the corresponding period in the previous year which followed a drought.

As a result further procurement of both rice and wheat by May-June 1990 reached 100 lakh and 110 lakh tonnes respectively. It was the highest ever procurement for the two commodities at this time of the current marketing season.

DISTRIBUTION

Total distribution of foodgrains in 1989 was about 159 lakh tonnes.

DISTRIBUTION OF FOODGRAINS IN TRIBAL AREAS

Under this scheme, foodgrains are distributed to people living in areas covered by Integrated Tribal Development Project (ITDP) and in tribal majority states at specially subsidised rates of Rs 1.79 per kg of wheat and Rs 2.19 per kg of common rice. It covers all the ITDP areas and tribal majority states/UTs of Nagaland, Meghalaya, Arunachal Pradesh, Mizoram, Lakshadweep and Dadra and Nagar Haveli. Its coverage has been extended to North Cachar and Karbi Anglong districts of Assam. Now 193 ITDP areas in 17 states and two union territories are covered under this scheme in addition to the above. Population (1981 census) covered by ITDPs is 536 lakh and tribal majority states—34 lakh, taking the total coverage to 570 lakh. Supplies of wheat and rice are made by Food Corporation of India (FCI) to various states/UTs at specially subsidised rates of Rs 1.54 per kg for wheat and Rs 1.94 per kg for rice.

IMPORT AND EXPORT

Rice was imported to the tune of 5 23 lakh tonnes (1.04 lakh tonnes from Thailand and 4.19 lakh from Vietnam) during 1989-90 to augment the stocks. FCI exported 12 thousand tonnes of wheat to Vietnam during the same period.

STORAGE

Three agencies in the public sector engaged in building large scale storage/warehouse capacity are Food Corporation of India (FCI), Central Warehousing Corporation (CWC) and 16 state warehousing corporations (SWCs).

FCI is the main agency which provides storage facility for foodgrains. Besides constructing its own godowns, it hires storage capacity from other sources such as CWC, SWCs, state governments and private parties. Main functions of CWC and SWCs are to acquire and build warehouses at suitable places and operate them for storage of agricultural produce, fertilisers and certain other items. Cooperatives provide storage facilities at primary and marketing level. A scheme has also been initiated for establishing a national grid of rural godowns for agricultural produce.

Covered storage capacity available with FCI up to December 1989 was

174.29 lakh tonnes, while that of CWC was 64.44 lakh. It has also hired godowns with a total capacity of 17.67 lakh tonnes. CWC operates 159 customs-bonded warehouses capacity about 8.32 lakh tonnes on 31 March 1989, besides air cargo complexes at Amritsar and Goa to cater to export trade. It also runs container freight stations at Patparganj, Delhi and Royapuram, Madras. CWC has 16 associates in state warehousing corporations. Total storage capacity available with SWCs (both owned and hired) was 86.54 lakh tonnes on 30 September 1989 Further storage capacity of 35.26 lakh tonnes was created at 211 centres with world Bank assistance under Second Foodgrains Storage Project.

QUALITY CONTROL

Storage and Research Division is responsible for formulation of uniform specifications for procurement of foodgrains to deal with policy matters in respect of technical aspects for their import and export. It also renders advice to FCI, state governments and other agencies on preservation and quality aspects. For this purpose, Central Grain Analysis Laboratory undertakes analysis of consignment samples of imported and indigenous foodgrains and their products. Three quality control cells functioning at New Delhi, Calcutta and Hyderabad monitor quality of foodgrains during procurement, storage and distribution.

RESEARCH AND TRAINING ON STORAGE

Research on storage and preservation of foodgrains is carried out at Indian Grain Storage Institute (IGSI), Hapur and its five other stations at Ludhiana, Hyderabad, Jabalpur, Udaipur and Jorhat. It covers both farm level and large scale storage of foodgrains.

SAVF GRAIN CAMPAIGN

Save Grain Campaign (SGC) launched as a pilot project in 1965-66 has become a regular scheme since 1969-70. It seeks to popularise scientific methods of foodgrains storage at farm level. The scheme aims at providing appropriate technology through education, motivation and persuasion in preventing losses and improving farm and community level storage Simple but effective methods of foodgrains storage and pest control are being popularised, with supply of improved types of metal bins and pesticides. Main idea is to help farmers minimise storage losses.

SGC is being undertaken through a network of its 14 regional teams and 3 sub-teams of technical staff. This is supplemented by Indian Grain Storage Institute, Hapur and its field stations.

NUTRITION

Nutritional status is of prime importance in national development. Programmes of Nutrition Division of Department of Food are concerned with nutrition education and extension, development and promotion of nutritious foods and fortification and enrichment of foods.

Nutrition education has been an important activity of the Department for more than two decades. Thirty four mobile food and nutrition extension units with audio-visual equipment and technically trained personnel have been set up to impart nutrition education in rural, urban and tribal areas. They organise live demonstrations supported by lecture-cum-discussions, film and slide shows and exhibitions on various aspects of food and nutrition, health care, hygiene, environmental sanitation, etc., in collaboration with states, educational institutions and voluntary organisations, etc.

The Department also has 33 food and nutrition extension centres (earlier known as community canning and preservation centres) for imparting education and training in domestic preservation of fruits and vegetables and providing processing facilities.

It has given a new thrust to its nutrition education activities by adopting an integrated approach with a view to imparting education on both food and non-food factors through field level functionaries of concerned departments. Integrated nutrition education camps and orientation training courses are organised for field level functionaries and their trainers respectively in collaboration with states and training institutions. National Nutrition Week is celebrated from 1 to 7 September every year with a view to creating nutrition awareness.

The Department has taken up action programmes for development and production of low cost processed nutritious foods for use in supplementary feeding programmes and meeting requirements of vulnerable sections. These foods are Miltone (a nutritious milk like beverage). energy foods, ready-to-eat extruded foods and weaning foods.

The Department has also taken up schemes for fortification of milk with Vitamin 'A' and salt with iron. Milk fortification scheme is in operation through 37 dairies covering 14 states and two union territories.

FOOD PROCESSING

Ministry of Food Processing Industries, first of its kind in developing countries, was established in July 1988 to provide a dynamic and synchronised mesh between farmer and industry for better utilisation of agricultural products, more value of rural produce, generation of massive employment in rural areas, enhancement of net level of rural incomes and induction of modern technology in food processing. The Ministry will act as a major catalyst by laying down an agro-based pattern for rural industrialisation for increased rural employment particularly for women. It would be a Central agency of the Government for promotion of food processing industries including formulation and implementation of industrial policy in respect of specific industries allotted to it in accordance with national priorities and objectives.

Industries/activities within purview of the Ministry are: (i) fruit and vegetable processing industry; (ii) foodgrain milling industry; (iii) dairy products such as milk powder, infant milk food, malted milk food, condensed milk, *ghee*, etc.; (iv) processing and refrigeration of poultry and eggs, meat and meat products; (v) fishing and fisheries beyond territorial waters; (vi) processing of fish; (vii) consumer industries such as bread, breakfast foods, biscuits, confectionery, oilseeds meal (edible), ready-to eat foods, etc.; (viii) specialised packaging for food processing industries; (ix) alcoholic drinks from non-molasses base; (x) beer including non-alcoholic beer, and (xi) aerated waters/soft drinks.

There was a substantial increase in the production of various items. Production of ready-to-eat extruded foods increased to 14,700 tonnes, cocoa products to 40,000 tonnes, high protein food to 8,900 tonnes and soft drinks to about 207 crore bottles in 1989-90.

The Ministry has formulated a package of measures for development of food processing industries which include among others: (a) promoting cottage and small scale industries and rural cooperatives to act as pre-processing centres and independent units; (b) permitting large houses to enter into food processing sector to achieve economies of scale and take care of post-harvest losses by forging appropriate backward linkages with growers; (c) granting high priority sector status to the industry for purpose of bank finance; (d) augmenting extension services and availability of inputs to growers; (e) considering fiscal incentives in taxes and duties to this sector; (f) improving preservation of raw materials and finished products by encouraging investment in cold storages; (g) promoting export of processed foods by devising concessional freight structure; (h) imparting state-of-the-art technology both for capital equipment and process technologies and developing indigenous capabilities through technology adoption and absorption; (i) promoting joint ventures abroad, and (j) developing deep sea fishing and exploiting untapped resources in Exclusive Economic Zone.

FRUIT AND VEGETABLE PROCESSING

The Ministry administers the Fruit Products Order, 1955 issued under the Essential Commodities Act, 1955. It ensures quality control on production and marketing of fruit and vegetable products by laying down statutory minimum hygienic and sanitary requirements for production. It also stipulates standards on quality, composition, permitted food colours, preservatives, etc., besides laying down labelling and marketing requirements to protect the interest of consumers.

It is the regulating agency under the Export (Quality Control and Inspection) Act, 1963 dealing with export of fruit and vegetable products. Consignments of fruit products meant for export are subjected to pre-shipment inspection to ensure that products conform to specifications laid down in the Fruit Products Order or buyer's specifications as the case may be. For fruit juices and pulps, in-plant inspection is also carried out to ensure quality production for their export. The Ministry also provides consultancy services for setting up fruit and vegetable processing units.

Directorate of Fruit and Vegetable Preservation under the Department has four regional offices at Bombay, Calcutta, Delhi and Madras. It utilises services of four laboratories (under Department of Food) at Bombay, Delhi, Calcutta and Madras apart from laboratories of Central Food Technological Research Institute, Mysore for maintenance of quality control of fruit and vegetable products. By December 1989, 29,642 samples were analysed as compared to 22,589 by December 1988.

Bihar Fruit and Vegetable Development Corporation Ltd., an undertaking of Bihar Government, has set up a fruit and vegetable processing plant at Hajipur, Vaishali at capital cost of Rs 193.68 lakh. The Ministry has a financial participation in the project.

Modern Food Industries (India) Ltd. (MFIL) with its bakery units in 13 important cities provides consumers hygienically prepared bread fortified with vitamins and minerals. MFIL has embarked on expanding its capacity to manufacture bread. It participates in combating malnutrition by supplying special nutritious bread and ready-to-eat extruded food to nutrition programmes of state governments. Its fruit juice bottling plant produces apple, mango, guava and pineapple juice drinks under the brand name *Rasika*. MFIL with a sales turnover of Rs 47.38 crore in 1988-89, employs nearly 2,400 persons.

North-Eastern Regional Agricultural Marketing Corporation Ltd., (NERAMAC) which was incorporated as a government company in March 1982 with headquarters at Guwahati, provides marketing outlet for horticultural products of north-eastern region. The Corporation's first major project, *viz.*, fruit juice concentrate plant in north Tripura was commissioned in June 1988 It processes pineapple and produces pineapple juice concentrate. NERAMAC has launched its pineapple juice consumer tetrapacks under the brand name *Pineap*.

Recent progress made in this sector is: (i) increase in installed capacity from 5.99 lakh tonnes in December 1988 to over 7 lakh tonnes in December 1989; (ii) increase in number of licensed units from 3,367 to 3,629 in the same period, and (iii) exports increased from 49.389 tonnes worth Rs 59.89 crore during January-December 1988 to 63.967 tonnes worth Rs 79.48 crore during January-December 1989

RICE MILLING INDUSTRY

With a view to modernising rice milling industry, a scheme for modernisation of hullers is being implemented in Andhra Pradesh, Tamil Nadu, Uttar Pradesh, West Bengal, Orissa and Maharashtra. It provides for Rs 7,500 subsidy each to 300 huller owners in each state, enabling them to instal modern equipment for milling paddy, setting up demonstration units and holding seminars on the subject. Three rice mill machinery testing centres, one each in southern, eastern and northern regions, have been established to ensure proper quality control and development of modern equipment. Nine rice milling extension service centres are functioning, one each in Andhra Pradesh, Karnataka, Maharashtra, Madhya Pradesh, Orissa, Tamil Nadu, West Bengal and two in Uttar Pradesh, to spread the message and advantages of modernisation. Post-Harvest Technology Centre at Indian Institute of Technology, Kharagpur and Paddy Processing Research Centre, Thiruvarur in Tamil Nadu, are engaged in research and development in applied aspects of paddy processing and by-products utilisation. As a result of modernisation efforts about 55 per cent of the total production of paddy is now processed in nearly 32,000 modern rice mills.

DAIRY PRODUCTS

Establishment of dairy units for manufacture of milk products is regulated by licensing under the provisions of the Industries (Development and Regulation) Act, 1951. Milk products fall under items 27(2) "milkfoods", and 27(3) 'malted foods' of the First Schedule to this Act.

Table 18.3 gives licensed capacity and production of various milk products.

TABLE 18.3 LICENSED CAPACITY AND PRODUCTION OF MILK PRODUCTS

Product	Licensed capacity (tonne)	Production during 1989 (tonne)
1 Milk powder/infant milk food	1,54,065	1,65,000
2 Malted milk food/malted food	33,877	35,000
3 Condensed milk	16,786	7,900
4 Cheese	4,780	1,500

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1 Figure relates to year 1988

POULTRY AND MEAT PRODUCTS

India produces over 12 lakh tonnes of meat annually. About 54 per cent meat is produced from sheep and goat, 26 per cent from cattle and buffalo, seven per cent from pig and 13 per cent from poultry. More than 100 units of meat products in private sector and eight pork processing plants (bacon factories) in public sector are functioning. At present only about one per cent of the total meat is converted into ready-to-cook/eat meat products. Its demand is, however, on the increase particularly in metropolitan cities. There is surplus of buffalo meat because of low demand internally, hence has good export potential. Out of total meat exports, buffalo meat alone accounts for 72 per cent. India also happens to be in proximity of major importing countries in West Asia. Despite this male buffalo calves in the dairies of metropolitan cities are being allowed to die for want of nutrition, leading to destruction of precious germ plasm. Therefore, there is need to salvage these buffalo calves for production of meat for export. Schemes are under consideration for salvaging this situation which would augment meat production for export. Other pressing needs for meat processing are to modernise meat processing plants for production of hygienic meat and proper utilisation of by-products. Establishment of poultry processing plants, freezing and modern transportation facilities will lead to long shelf-life of products, which would help poultry producers get better prices. Poultry sector contributes about Rs 1,300 crore to GNP per annum. With a capital of nearly Rs 1,000 crore it produces 2,000 crore eggs and 12 crore broilers per annum.

FISHING AND FISHERIES BEYOND TERRITORIAL WATERS

DEEP SEA FISHING

As early as 1977, Government had declared 200 nautical miles of exclusive economic zone (EEZ) with a view to opening vast vistas for development of marine fisheries. Introduction of deep sea fishing vessels is being encouraged to exploit living resources from over 20 lakh sq km of EEZ. Such vessels (20 metres and above overall length) are pressed into operation through import, indigenous construction and chartering of foreign fishing vessels.

One hundred and seventy two such vessels are now operating on ownership basis in EEZ. Another 45 vessels are being constructed at Indian and foreign shipyards for Indian companies. Of these 24 vessels are expected to be delivered by 1990. Such vessels both imported and indigenous were introduced in 1989. Shipping Credit and Investment Company of India (SCICI) provides loans for entire project including cost of vessels, operating cost and other pre-operative expenditure. Government is presently encouraging acquisition of following resource specific vessels for exploitation of non-shrimp resources: (i) Tuna long liner; (ii) Pole and line vessel for tuna fishing; (iii) Tuna Purse-seiner; (iv) Squid Jigger, and (v) Stern trawler.

CHARTER POLICY

Charter policy of Government has following objectives: (a) to facilitate abundant growth and distribution of fishery resources in EEZ; (b) to assess suitable craft and gear for economic operation; (c) to achieve transfer of technology; (d) to enlarge deep sea fishing fleet on ownership basis, and (e) to establish overseas market for non-conventional fish.

Charter policy of Government is governed by provisions of the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981 and Rules framed in 1982. Enactment of this legislation achieved these two objectives: (i) curtailing of incidents of poaching by unauthorised foreign fishing vessels and (ii) regulation of foreign chartered vessels operation in areas not in conflict with traditional sector and mechanised boat operations.

Presently 102 such vessels are in operation.

FISHERY SURVEY OF INDIA

Fishery Survey of India (FSI) has its headquarters at Bombay, four zonal bases at Marmugao, Cochin, Madras and Vishakhapattnam and other smaller bases at Porbandar, Bombay and Port Blair. FSI is engaged in exploratory survey of marine fishery potential in EEZ.

In 1989-90, FSI made substantial advancement in demersal fish resources survey and assessment along east coast and west coast, besides pelagic fish resources survey along south-west coast. Two new tuna long line survey vessels acquired from Japan were engaged in surveying tuna resources of north-west coast and Andaman and Nicobar waters. During the year, FSI introduced jigging method for exploitation of squid resources. Experimental operations off south-west coast have been extended to north-west and east coast, which are expected to open new avenues of exploitation of squid resources, having good export potential. By December 1989 exports of marine products were 67,513 tonnes worth Rs 426.78 crore despite a slump in major international markets.

On results of surveys conducted by FSI, Government has formulated deep sea fishing policy under which schemes such as chartering of foreign fishing vessels and joint ventures are thrown open to fishing companies, entrepreneurs, cooperatives, technocrats, etc.

FSI is now tranferring to the fishing industry, technology adopted and tested during the surveys. In this effort, it helped industry by deputing experienced skippers/technocrats to impart knowledge and skills in diversified techniques for exploitation of deep sea crustacean resources. FSI survey fleet comprises 12 large vessels and a medium vessel capable of demersal trawling, tuna long lining, purse-seining and squid jigging. Data gathered by these vessels is disseminated to the industry, Government and other end-users in the form of scientific papers, bulletins, special publications, atlas/charts etc. This data in turn also enables FSI to evaluate project reports for deep sea fishing to be licensed/sponsored by Government/financial institutions.

CIVIL SUPPLIES

PRICE MANAGEMENT

Inflationary pressures generated in 1987-88 in the wake of severe drought which continued till early 1988-89, were contained as a result of judicious supply management. They started receding in second quarter of 1988-89 because of successive two good agricultural crops having overall sobering effect on prices, particularly of cereals and pulses. Annual rate of inflation (Wholesale Price Index October 1989), was 7.4 per cent as against 7.7 per cent in corresponding period in 1988 and 8 per cent in 1987. Its rate, in terms of Consumer Price Index for Industrial Workers (September 1989), was also lower at 7.7 per cent compared to 8.2 per cent and 10.2 per cent in the corresponding period in 1988 and 1987 respectively. During first seven months of the current financial year (April-October 1989), All Commodities Wholesale Index (WPI) registered an increase of 7 per cent which was higher than 5.1 per cent rise recorded in the corresponding period in 1988 but was lower than the increased rate of 7.9 per cent in the corresponding period in 1987. Prices, however, started showing signs of easing from second half of September 1989. Annual rate of inflation which touched 9.6 per cent on 16 September 1989 came down to 7.4 per cent on 18 November 1989.

COMMODITYWISE PRICE TREND

CEREALS

Prices of cereals in general remained somewhat subdued in the current financial year, which was attributed to good agricultural crop for second successive year. Index of rice was only moderately higher by 6.6 per cent and that of *ragi* by 10.2 per cent during April-October 1989, while that of wheat and barley was lower by 9.6 and 14 per cent respectively. Wholesale prices of *jowar, bajra* and maize also remained softened. For pulses, a mixed trend was visible and WPI of *arhar* and *urad* were substantially higher during past seven months of the current financial year while those of *gram* and *masoor* were modestly higher.

Import duty on pulses which was raised in October 1988 from 10 to 35 per cent had been reduced to 10 per cent from 1 November 1989.

EDIBLE OILS

Prices of edible oils including groundnut and *kardi* oil generally remained moderately high till November 1989. WPI of sub-group of edible oils up to this period which was higher by 10.9 per cent as compared to corresponding period in 1988-89, declined modestly by 1.5 per cent Increase in prices of major edible oils such as groundnut and mustard oil was partially due to implementation of integrated policy on oilseeds to ensure remunerative prices to farmers and fair prices to consumers. Under this policy, National Dairy Development Board was entrusted with the task of marketing intervention operation both in the interests of growers and consumers. Besides, imports of edible oils were also effected for distribution through public distribution system (PDS) to keep their prices within reasonable levels to consumers particularly during busy festival season.

SUGAR

Prices of sugar which remained under pressure during first half of 1989-90, started showing a sharp increase in July-September 1989 on account of increased festival demand, psychology of scarcity due to lower production of sugar in 1988-89 (sugar year October-September) and upward revision of ex-factory price of sugar by mills. Government, therefore, took a number of measures such as lowering of stock limits by wholesalers, dialogue with the industry for necessary reduction in prices and arrangements for sale of sugar by mills to wholesalers at Rs 775 a quintal for supply to consumers at reasonable price of Rs 9 per kg through trade channels, incentives to sugar mills for early crushing of sugarcane, strict monitoring of prices and availability of sugar, dehoarding operations undertaken by states and increased allocation of levy sugar and free sale sugar in October 1989. Because of these measures sugar was available at Rs 8.75 to Rs 9.50 per kg in most parts of the country.

AVAILABILITY SITUATION

Government policy mainly aims at increasing the production of essential commodities and managing the supplies in such a manner that they are available throughout the year. Various programmes are being implemented to increase the production of several agricultural products, besides special measures to increase production of oilseeds and pulses. Efforts are also on to increase production of sugarcane, fruits and vegetables. In order to ensure remunerative and incentive prices to farmers, procurement/minimum support prices of various agricultural commodities were raised further in 1989-90. Domestic production of essential commodities like edible oils and pulses which are in short supplies are supplemented by imports.

PUBLIC DISTRIBUTION SYSTEM

Public distribution system (PDS) is an important measure to tackle the inflationary trend, *i.e.*, to keep the price under check, reduce fluctuations in prices and ensure supply of essential commodities at reasonable prices, particularly to weaker and vulnerable sections. Pressure on PDS continued during the year due to higher prices of essential commodities in open market. Total allocations of rice and wheat (including those under PDS, NREP, RLEGP, nutritional programme, etc.) during January-November 1989 were 75.88 and 80.04 lakh tonnes respectively as against 86.05 and 84.38 lakh tonnes respectively in the corresponding period in the previous year.

In order to control sugar prices and ensure its availability at reasonable rates to consumers, Government took a number of measures including increased allocation of sugar (both free sale and levy sugar) from 8.82 lakh tonnes in September 1989 to 10.32 lakh tonnes in October 1989 as against 9.17 lakh tonnes in October 1988. To augment the domestic availability imports of about three lakh tonnes of sugar had been contracted

In view of higher production of oilseeds and their consequent improved availability in open market, total allocations of imported edible oils during January-November 1989 were reduced to 3.65 lakh tonnes as against 9.79 lakh tonnes in the corresponding period in 1988 showing a decline of 62.6 per cent. Rise in prices of groundnut oil made Government import one lakh tonnes of palmolein, bulk of which routed through PDS.

Public distribution system continues to be a major component of our strategy for growth with social justice. Centre, states and union territories have a joint responsibility in making this system a success. The working of PDS is periodically reviewed in consultation with state governments and corrective measures taken. At Centre, an advisory council functions to review its working from time to time. In states/UTs consumer advisory committees at district, block and taluka levels oversee the working of fair price shops (FPS).

Government procures and supplies seven essential commodities, *viz.*, rice, wheat, sugar, imported edible oils, kerosene, soft coke and controlled cloth. States/UTs are free to include any other commodity of mass consumption by arranging for its procurement on their own. Some states have already arranged supplies of pulses, vanaspati, soaps, cycle tyres and tubes, torch cells, etc., through FPS.

Network of FPS has been expanding over the years and in the last five years their number increased from 3.02 lakh (March 1984) to 3.54 lakh (March 1989). Special emphasis is being laid on opening of FPS in remote, far-flung and inaccessible areas particularly covering tribal population. With a view to ensuring that the essential commodities reach the farthest corners in hilly and inaccessible areas, Government continued to provide financial assistance to states/UTs enabling them to purchase mobile vans. Such assistance was worth Rs 245.68 lakh for purchase of 99 vans in 1988-89. For north-eastern states, cent per cent subsidy is also provided for packaging to ensure sale of iodised salt and levy sugar in small packs which helps save these items from high moisture due to adverse climatic conditions in the region.

EDIBLE OILS ECONOMY

Oils and fats are considered essential food items for a balanced diet. Department of Civil Supplies is responsible for integrated management of supply, price and distribution of vanaspati, vegetable oils and fats. Overall objective is to ensure availability of appropriate quantity of edible oils at reasonable price to consumers particularly weaker sections and safeguarding the interests of producers to achieve self-sufficiency in edible oils in near future. Government has been importing edible oils to bridge the gap between demand and supply. Concerted efforts of Government coupled with good monsoon saw a considerable increase in production of edible oilseeds during the oil year 1988-89. This in turn lessened the dependence on import from 18-19 lakh tonnes in 1987-88 to 3.73 lakh tonnes in 1988-89, thereby saving foreign exchange worth over Rs 800 crore. During the oil year 1988-89, 4.48 lakh tonnes of imported edible oils were allocated to states/UTs for public distribution, while only 3.58 lakh tonnes of oil was lifted by them.

HINDUSTAN VEGETABLE OILS CORPORATION LIMITED

Government took over Ganesh Flour Mills and Amritsar Oil Works under the Industries (Development and Regulation) Act, 1951 in 1972 and 1974 respectively. These companies subsequently nationalised in 1982 and 1984 respectively, were merged into a new government company, namely, Hindustan Vegetable Oils Corporation Limited (HVOC) from 23 April 1984. HVOC with nine units in the country, is engaged in the production of vanaspati, refining and packing of imported edible oils. It also operates a scheme for packing and selling imported edible oils in small consumer packs. One of its units is engaged in production of breakfast food items like oats and cornflakes besides manufacturing ready-to-eat snacks for child welfare programmes.

In 1988-89, HVOC had a turnover of Rs 338 crore as compared to Rs 374 crore during 1987-88. It earned a profit of Rs 13.58 crore during 1988-89 as compared to Rs 26.77 crore during 1987-88. Decline in turnover and profit was due to reduction in import of edible oils consequent upon good crops leading to lower business in refining and packing of edible oils.

VANASPATI

Vanaspati industry is the second largest food processing industry, next only to sugar. At present, there are 113 vanaspati units with a licensed capacity of 20.42 lakh tonnes per annum. Out of this 97 are with an installed capacity of 15.33 lakh tonnes per annum. Production of vanaspati (September 1988) was 8.93 lakh tonnes. Vanaspati capacity is also partly utilised for manufacture of margarine, bakery shortening and refined oils for direct human consumption and industrial hard oils for soap making.

Industrial licences are issued for manufacture of vanaspati which is a scheduled industry under the Industries (Development and Regulation) Act, 1951. Priority is given to oilseeds growers cooperative societies for issuing letter of intent for manufacture of vanaspati.

SOLVENT EXTRACTED OIL

The Solvent Extracted Oil, De-oiled Meal and Edible Flour (Control) Order, 1967 was promulgated in March 1967 under the Essential Commodities Act, 1955. About 755 licences for manufacture of solvent extracted oils had been issued up to October 1989. Production of these oils increased from 3.04 lakh tonnes in the oil year 1981-82 to about 6.87 lakh tonnes by August 1989. Certain fiscal incentives are also provided with a view to augmenting production.

CONSUMER COOPERATIVES

Consumer cooperatives play an important role in supplying quality goods at reasonable rates to common public for its daily needs. Programmes for development of consumer cooperatives are being introduced in a planned manner so that they remain as a permanent and distinct feature in PDS. Consumer cooperatives are promoted and strengthened to support PDS and a strong consumer protection movement both in urban and rural areas.

Government also provides financial assistance by way of margin money to primary agriculture cooperative societies (PACS) and large sized multi-purpose societies (LAMPS) to undertake distribution of consumer articles in rural areas. This scheme is implemented through National Cooperative Development Corporation (NCDC). Against an allocation of Rs 24.50 crore proposed to be provided as margin money to village level societies under this scheme during Seventh Plan, Rs 8.92 lakh had been released to NCDC till March 1989 due to economy reasons. About 10 per cent of the funds released to NCDC was earmarked for tribal areas.

These cooperatives comprise 22,035 primary consumer cooperative stores, 660 central wholesale consumer societies at district level, 26 state level consumer federations, state marketing-cum-consumer federations and a National Consumers' Cooperative Federation (NCCF). They have 36,000 retail outlets in urban and 55,000 primary agricultural credit societies in rural areas. Half of these are actively involved in distribution of consumer goods in rural areas.

Retail sales of these cooperatives in urban areas was likely to touch Rs 2,800 crore during 1989-90 as against Rs 2,300 crore during 1987-88. Consumer articles worth Rs 2,500 crore were likely to be distributed by primary agricultural credit societies in rural areas during 1989-90 as against Rs 2,075 crore in 1987-88.

At national level, NCCF was set up in 1965 with the objective of providing supply support and promotional and technical guidance/ assistance to consumer cooperative movement. The Federation had 108 members on 30 June 1989.

Seventh Plan envisaged an allocation of Rs 19.50 crore for a Centrally-sponsored scheme to develop such cooperatives in urban areas. But due to economy reasons till 1988-89 only Rs 6.05 lakh could be released to states/UTs for setting up 35 department stores (including modernisation), 272 retail outlets, 16 mobile vans and for rehabilitation of 10 sick wholesale societies (including one state federation) and two consumer industries.

Super Bazar, the Cooperative Store Ltd., New Delhi established in 1966, is one of the biggest such institutions in the country. It runs the largest chain of 125 retail outlets including three big department stores and 18 drug stores of which six outlets provide round-the-clock service. In addition, it also runs 63 mobile van shops, 10 of which are fruit and vegetable specials. All food items sold through Super Bazar are tested in its laboratory before sale. As on 30 June 1989, it had a total membership of 24,476 and a total paid-up share capital of Rs 112.47 lakh of which Government contribution was Rs 99.76 lakh. Its sales turnover had increased from Rs 69.77 crore during 1986-87 to Rs 158.32 crore from 1 July 1987 to 31 March 1989.

CONSUMER PROTECTION

Government accords high priority to consumer protection. Department of Civil Supplies, as a nodal authority in matters relating to consumer affairs, has initiated various measures to promote a broad-based and responsive consumer movement. These include use of mass media for education and information to consumers, involvement of increasing number of consumer organisations in taking up cause of consumers and coordinating steps taken by states/UTs, ministries and departments.

LEGISLATION

In December 1986, seven major consumer protection legislations, namely, the Essential Commodities Act, 1955; the Prevention of Food Adulteration Act, 1954; the Drug and Cosmetics Act, 1940; the Monopolies and Restrictive Trade Practices (MRTP) Act, 1969; the Agriculture Produce (Grading and Marking) Act, 1975; the Standards of Weights and Measures Act, 1975, and the Standards of Weights and Measures (Enforcement) Act, 1985 were amended to empower consumers and registered consumer organisations to file complaints in court, which hitherto were vested with Government officials only

CONSUMER PROTECTION ACT

Government has enacted a comprehensive consumer protection legislation, namely, the Consumer Protection Act, 1986 to safeguard consumer interests All the provisions of this Act came into force since July 1987. The Act applies to all goods and services unless specifically exempted by Central government. It covers public, private, joint and cooperative sectors. The Act provides for setting up consumer protection councils in the Centre and states, whose main object will be to promote and protect consumers' rights. It enshrines rights of consumers such as right to safety, right to be informed, right to consumer education, etc. The Act also provides for setting up of three-tier quasi-judicial machinery at district, state and national level to provide speedy and inexpensive redressal to consumers' grievances. Consumer Disputes Redressal Forum (district forum) consists of three members including a person who qualifies to be a district judge as its president. It will entertain complaints where value of goods or services and compensation, if any, claimed is less than rupees one lakh. State Consumer Disputes Redressal Commission (state commission) consists of three members including a person who is or has been judge of a high court as its president. It will entertain complaints where value of goods or services and compensation, if any, claimed is more than rupees one lakh but less than Rs 10 lakh. National Consumer Disputes Redressal Commission (national commission) consists of members among others a person who is or has been a judge of Supreme Court as its president. It will entertain complaints where value of goods or services and compensation, if any, claimed exceeds Rs 10 lakh. National Commission and state commissions have appellate and revisionary jurisdiction also.

'Consumer Day' was observed on 15 March all over the country. This year, 'Consumer Week' from 15-21 March was also organised. Main thrust was to generate awareness in consumers about their rights and how to exercise them. On this occasion, an exhibition was also held at Super Bazar, New Delhi. It sought to provide information to consumers about various measures available to them to protect their rights against evils of adulteration, short weighments and other unfair trade practices and quick, simple and inexpensive legal remedies available under the Consumer Protection Act. Considering needs of consumers, Government is regulating quality of items of mass consumption or those involving safety and health of consumers under BIS Certification Marks Scheme.

Department of Civil Supplies also organised a national seminar in New Delhi (17 March 1990) on consumer protection. Similar seminars, symposia, workshops, exhibitions, corner meetings are also slated at state and district levels.

Central government has constituted the Central consumer protection council. Thirty states/UTs have constituted state level consumer protection councils. National Commission consisting of five members has already started functioning with Justice V.B. Eradi as its president. Redressal machinery has also started functioning in 11 states/UTs. Eight states/UTs have issued notification. In addition, Central government has conveyed its approval to another nine states/UTs to set up this machinery.

PUBLICATIONS

The Department has brought out a number of booklets/brochures to educate consumers so far, such as 'Help Prevent Adulteration', 'Salient Features of the Consumers' Protection Act, 1986', 'Directory of Voluntary Consumer Organisations', 'Shopping of Packaged Comodities' and 'Rights of Consumers'. A book 'Poisons in our Food' has also been printed.

NATIONAL AWARDS

The Department has instituted two national awards on consumer protection. National Youth Award carries three prizes of Rs 20,000, Rs 15,000 and Rs 10,000. It is for persons in the age group of 15-35, who have done outstanding work in the field of consumer protection. National Award on Consumer Protection carries three prizes of Rs 50,000, Rs 40,000 and Rs 30,000, voluntary consumer organisations doing outstanding work in the field of consumer protection are eligible for it.

STANDARDISATION AND QUALITY CONTROL

Bureau of Indian Standards (BIS), national standards body of India is engaged *inter-alia* in harmonious development of the activities of standardisation, marking and quality certification. The Bureau has an active support of over 37,000 technical experts as members of committees engaged in formulation of Indian standards in different technological areas. Members are drawn from industries, educational and research institutions, testing laboratories, government departments and consumer organisations. The task of formulating standards is organised through 15 technical divisions of BIS. As on 31 March 1989, 14,438 Indian standards were in force.

In the area of certification, the number of licences in operation as on 31 March 1989 was 10,795 and 819 more licences granted from April to October. BIS has also brought under mandatory certification about 120 items for health and safety reasons of consumers.BIS has established a network of testing laboratories at Sahibabad (near Delhi); Bombay, Calcutta, Madras, Mohali (near Chandigarh), Bangalore, Guwahati and Patna. One more laboratory at Ahmadabad was expected to become functional during 1989-90. BIS also makes use of various public and private laboratories in the country for testing of samples.

In order to give thrust to standardisation, certification, product testing and quality improvement, committees have been set up in Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Rajasthan, Punjab, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal and Delhi. Other states/UTs are considering setting up such committees shortly.

BIS has formulated over 2,000 standards relevant to rural development. Indian standards on agricultural inputs and in post-harvest technology have played an important role in the success of green revolution. Stress is laid on intensifying use of these standards and new technologies to change the face of rural India. BIS has set up an apex body to oversee standardisation aspects of power plants and associated equipment and operating systems for efficient generation, transmission and distribution of thermal power. It has also established a new Consumer Affairs Department to assist consumer movement in the country on one hand and to interact with Central and state consumer bodies on the other. This will go a long way in propagating quality consciousness among consumers.

For harmonious development of standardisation, BIS interacts with public sector units, Directorate of Defence Standardisation, Research, Design and Standards Organisation of Railways and many other leading organisations in the country. As a result 80 nodal points in public sector undertakings have been established to interact with BIS. For promotion of standardisation and quality systems (SQS), BIS is organising programmes on company standardisation, implementation conferences, industrywise conferences, educational utilisation of standards. SQS training, product testing, etc. About 50 such programmes are organised every year.

BIS has a strong network of offices. New offices have been opened at Faridabad, Ghaziabad, Lucknow, Coimbatore and Srinagar for effective surveillance of certification and promotion of standardisation. BIS has made significant contribution in international standardisation movement. It is closely associated with international standards organisations like International Organisation for Standardisation (ISO) and International Electrotechnical Commission (IES) for both technical work and policy planning.

India entered in international certification for electronic components by becoming certifying member of IECO Quality Assessment System for Electronic Components operated by IEC. Components certified under this system in India could be sold in world market without any further testing and inspection. BIS has the overall responsibility for operation of this system in India as a nationally authorised institution.

STANDARDS OF WEIGHTS AND MEASURES

One of the important reforms undertaken in the country after independence was the unification of the system of weights and measures. Uniform standards of weights and measures based on metric system were established under the Standards of Weights and Measures Act, 1956. Standards established by this Act were enforced in accordance with provisions of laws adopted by states for the purpose. States also created a suitable machinery for enforcement of these laws. The weights and measures unit in the Department of Civil Supplies is the nodal agency for all activities relating to the subject.

In order to establish international system of units, align our laws with international practices and remove certain deficiencies, a comprehensive legislation, namely, the Standards of Weights and Measures Act, 1976 replaced the 1956 Act. The 1976 Act contains, among other things, provisions for regulation of pre-packed commodities, which are intended to establish fair trading and price discipline for commodities sold to consumers in packaged form. Provisions of the Act relating to packaged commodities and relevant rules, namely, the Standards of Weights and Measures (Packaged Commodities) Rules, 1977 are in force since September 1977. According to these provisions, every package intended for retail sale is required to carry information as regards name of the commodity, name and address of manufacturer/packer, net contents, month and year of manufacturing/packing and sale price. Mandatory declaration of sale price on package prohibits retail dealer from charging more than the declared price and protects consumers against arbitrary charging.

In order to ensure uniformity in matter of enforcement, the Standards of Weights and Measures (Enforcement) Act, 1985 was passed by Parliament. This was to replace the existing Weights and Measures (Enforcement) Acts of states. It contains provisions for effective legal control on weights, measures and weighing/measuring instruments used in commercial transactions, industrial production and protection of public health and human safety. For expediting this Act, model draft enforcement rules were circulated to states/UTs. In most of states these rules have been notified.

INDO-GERMAN TECHNICAL COOPERATION PROGRAMME

There is an agreement between India and Federal Republic of Germany (FRG) for developing and modernising weights and measures system in the country. Under this, FRG is to provide equipment, advanced training and expert services for promotion of weights and measures system.

INDIAN INSTITUTE OF LEGAL METROLOGY

Indian Institute of Legal Metrology, *Ranchi* under Department of Civil Supplies, imparts training in legal metrology and allied subjects. Training facilities have been strengthened in collaboration with FRG with a view to providing effective in-service training to personnel for enforcing weights and measures laws.

LABORATORY FACILITIES AND PRODUCTION OF STANDARDS

Three regional reference standards laboratories (RRSL) were set up at Ahmadabad, Bhubaneshwar and Bangalore to provide facilities to state enforcement organisations and the industry of the regions Facilities in these laboratories have been developed with the ultimate object to improve quality of measurement in industries and protect consumers' interest in the matter of quantity.

National Physical Laboratory, New Delhi is responsible for realisation, establishment, custody, maintenance and updating national standards of weights and measures.

Government of India Mint, Bombay undertakes manufacture of reference, secondary and working standards and caters to needs for standards not only of various states/UTs but also of several other countries

FORWARD CONTRACTS

Forward Market Commission, set up under the Forward Contracts (Regulation) Act, 1952 is a statutory organisation responsible for administration and enforcement of this Act. It regulates forward trading in various commodities to which regulatory provisions of this Act have been applied through associations recognised at selected centres for such trading; takes action to curb unhealthy speculation in such regulated forward markets, and keeps a watch over price trends of a number of commodities. It assists states/UTs in enforcement of Government's policy regarding prohibition or suspension of forward trading in any commodity. The Commission has its head office at Bombay with a branch office at Calcutta.

Enforcement of the penal provisions of the Act to check illegal forward trading is the responsibility of state governments. Role of the Commission in this respect is advisory in nature, extending to communicating information about such trading to concerned police authorities, scrutinising documents seized by them and giving expert advice. The Commission also conducts training programmes and seminars for familiarising police/ prosecuting officers, magistrates, civil supplies officers, etc., in technicalities of offences under this Act.

TRADE MARKS

Trade and Merchandise Marks Act, 1958 provides for registration and better protection of trade marks and prevention of use of fraudulent marks on merchandise. The Trade Marks Registry is the statutory organisation set up for administration of the Act.It works under Controller General of Patents, Designs and Trade Marks, who is the Registrar of Trade Marks for purpose of the said Act. The Registry has its head office at Bombay with branch offices at Calcutta, Delhi and Madras.

19 Energy

ENERGY is an essential input for economic development and improving quality of life. India's per capita consumption of commercial energy (*viz.*, coal, petroleum and electricity) is only one-eighth of global average and will increase with growth in Gross Domestic Production (GDP) and improvement in standard of living.

Commercial energy accounts for a little over half of the total energy used in the country, the rest coming from non-commercial resources like cowdung, fuel wood and agricultural waste. Though the share of these non-commercial sources has been coming down, consumption has increased almost double since 1953.

These renewable, non-commercial sources have been used extensively for hundreds of years, but in a primitive and ineffective way. Indiscriminate use of non-commercial energy sources is leading to an energy crisis in rural areas. Seventh Plan laid emphasis on the development and accelerated utilisation of renewable energy sources in rural and urban areas. A major policy of Government is directed towards increasing the use of coal in household and of electricity in transport sector in order to reduce dependence on oil, which is becoming scarce gradually.

Government has formulated an energy policy with objectives of ensuring adequate energy supply at minimum cost, achieving self-sufficiency in energy supplies and protecting environment from adverse impact of utilising energy resources in an injudicious manner. Main elements of the policy are: (i) accelerated exploitation of domestic conventional energy resources—oil, coal, hydro and nuclear power; (ii) intensification of exploration to increase indigenous production of oil and gas; (iii) management of demand for oil and other forms of energy; (iv) energy conservation and management; (v) optimisation of utilisation of existing capacity in the country; (vi) development and exploitation of renewable sources of energy to meet energy requirements of rural communities; (vii) intensification of research and development activities in new and renewable energy sources; and (viii) organisation of training for personnel engaged at various levels in energy sector.

Development of conventional forms of energy for meeting the growing energy needs of society at a reasonable cost is the responsibility of Government *viz.*, Departments of Power, Coal and Petroleum and Natural Gas. Development and promotion of non-conventional/alternate/new and renewable sources of energy such as solar, wind and bio-energy, etc., are also getting sustained attention from Department of Non-Conventional Energy Sources created in September 1982. Nuclear energy development is being geared up by the Department of Atomic Energy to contribute significantly to overall energy availability in the country.

POWER

Electricity is the most convenient and versatile form of energy. Demand for it, therefore, has been growing at a rate faster than other forms of energy. Power industry too has recorded a phenomenal rate of growth both in terms of its volume and technological sophistication over the last few decades. Electricity plays a crucial role in both industrial and agricultural sectors and, therefore, consumption of electricity in the country is an indicator of productivity and growth. In view of this, power development has been given high priority in development programme.

Although power development was initiated in India as early as 1900 with the commissioning of hydro-electric power stations at Shivasamudram in Karnataka, progress was not impressive till 1947. Installed capacity was as low as 19 lakh kw and activity was mainly concentrated around urban areas. Power generation programme, however, made phenomenal progress with the advent of Five Year Plans. Power sector is highly capital-intensive and investment in this sector constitutes a substantial share of total Plan outlay in the country.

DEVELOPMENT UNDER PLANS

During first Plan, construction of a number of major river valley projects like Bhakra-Nangal, Damodar Valley, Hira Kund and Chambal Valley was taken up. These projects resulted in the stepping up of power generation. At the end of First Plan, generation capacity stood at 34.2 lakh kw.

Emphasis in Second Plan was on development of basic and heavy industries, and related need to step up power generation. Installed capacity at the end of Second Plan reached 57 lakh kw.

During Third Plan, emphasis was on extending power supply to rural areas. A significant development in this phase was emergence of inter-state grid system. The country was divided into five regions to promote power development on a regional basis. A regional electricity board was established in each region to promote integrated operation of constituent power system. Three Annual Plans that followed Third Plan aimed at consolidating programmes initiated during Third Plan.

Fourth Plan envisaged need for Central participation in expansion of power generation programmes at strategic locations to supplement activities in state sector.

Progress during the period covering Third Plan, three Annual Plans and Fourth Plan was substantial with installed capacity rising to 313.07 lakh kw comprising 113.86 lakh kw from hydro-electric projects, 192.81 lakh kw from thermal power projects and balance of 6.4 lakh kw from nuclear projects at the end of Fifth Plan.

During Sixth Plan, total capacity addition of 196.66 lakh kw comprising hydro 47.68 lakh kw, thermal 142.08 lakh kw and nuclear 6.90 lakh kw was planned. Achievement, however, had been 142.26 lakh kw (28.73 lakh kw hydro, 108.98 lakh kw thermal and 4.55 lakh kw nuclear) *i.e.*, 72.3 per cent of the target.

CAPACITY ADDITIONS

Seventh Plan power programme envisaged aggregate generating capacity of 22,245 mw in utilities. This comprised 15,999 mw thermal, 5,541 mw hydro and 705 mw nuclear of the anticipated 22,245 mw additional capacity. Central sector programme envisaged capacity addition of 9,320 mw (7,950 mw thermal, 655 mw hydro and 705 mw nuclear) during the Plan period. During first four years of Seventh Plan, 16,713.94 mw had been added comprising 12,926.4 mw thermal, 3,317.54 mw hydro and 470 mw nuclear. Yearwise commissioning of hydro, thermal and nuclear capacity added during 1985-86 to 1988-89 is given in table 19.1

TABLE 19.1 ADDITION TO POWER GENERATION CAPACITY

(Megawatt)

	Thermal	Hydro	Nuclear	Total
1985-86[1]	2,977	1,011	235	4,223
1986-87[1]	1,920	704.5	—	2,624.5
1987-88[1]	3,912.1	1,069.34	—	4,981.44
1988-89[1]	4,117.3	532.7	235	4,885.2

[1] Actual

During 1989-90, 4,892.4 mw of additional capacity had been targetted. It is tentatively planned to add in Eighth Plan, a new generation capacity of about 38,369 mw. As against a target of installation of 22,245 mw of additional generation capacity, 22,123 mw was already installed (an achievement of 99.45 per cent). Of this, 21,105 mw was actually commissioned by 31 March 1990.

As part of a major policy initiative to augment power capacity in southern and peninsular regions, 14 locations have been identified in coastal areas where thermal power projects with an aggregate capacity of 16,090 mw are likely to come up by the year 2000 A.D. Coastal thermal power projects will be located at Vishakhapatnam (Andhra Pradesh); Ennore, North Madras, Cuddalore, Tuticorin (extension) and Nagapattinam (Tamil Nadu); Pondicherry; Kayamkulam and Trikaripur (Kerala); Karwar and Nandikur (Karnataka); Goa, Dabhol (Maharashtra), and Vadinar (Gujarat).

Preliminary work has already started at Ennore, North Madras, Tuticorin (extension), Kayamkulam and Nandikur thermal power projects.

POWER GENERATION

Installed power generating capacity in the country has been increased from meagre 1,400 mw in 1947 to 64,000 mw at present.

Target of power generation during 1988-89 was 226.5 billion units. Of this 163.0 billion units were programmed for generation by thermal stations, 5.5 billion by nuclear plants and 58.0 billion by hydro stations. Actual power generation during 1988-89 was 221.12 billion units comprising 157.51 billion units thermal, 5.82 billion nuclear and 57.79 billion hydro. Though actual generation in 1988-89 was less than the target, it was 9.5 per cent more than the generation in 1987-88. Against a target of 54.8 per cent actual plant load factor of thermal power stations during 1988-89 was 55 per cent as compared to 56.5 per cent during 1987-88.

A total of 181.2 billion units were generated during April-December 1989 registering a growth of 11.9 per cent. It comprised 128.616 billion units thermal, 49.370 billion units hydro and 3.176 billion units nuclear. Power generation programme for 1989-90, however, had been fixed at 251.3 billion units comprising 182.3 billion units thermal, 70 billion nuclear and 62 billion hydro.

ORGANISATION

The subject 'Power' appears in Concurrent List of the Constitution and as such responsibility of its development lies both with Central and state governments. At Centre, Department of Power under Ministry of Energy is responsible for development of electric energy. The Department is concerned with policy formulation, perspective planning, procuring of projects for investment decisions, monitoring of projects, training and manpower development, administration and enactment of legislation in regard to power generation, transmission and distribution. The Department is also responsible for administration of the Electricity (Supply) Act, 1948 and the Indian Electricity Act, 1910 and undertakes all amendments thereto. The Electricity (Supply) Act, 1948 forms basis of administrative structure of electricity industry. The Act provides for setting up of a Central Electricity Authority (CEA) with responsibility, *inter-alia*, to develop a national power policy and coordinate activities of various agencies and state electricity boards. The Act was amended in 1976 to enlarge scope and function of CEA and enable creation of companies for generation of electricity.

Central Electricity Authority advises Department of Power on technical, financial and economic matters. Construction and operation of generation and transmission projects in Central sector are entrusted to Central power corporations, namely, National Thermal Power Corporation (NTPC), National Hydro-Electric Power Corporation (NHPC) and North-Eastern Electric Power Corporation (NEEPCO) under administrative control of the Department of Power. The Damodar Valley Corporation (DVC) constituted under the DVC Act, 1948 and the Bhakra Beas Management Board (BBMB) constituted under the Punjab Reorganisation Act, 1966, are also under administrative control of Department of Power. In addition, the Department administers Beas Construction Board (BCB) and National Projects Construction Corporation (NPCC) which are construction agencies and training and research organisations, Central Power Research Institute (CPRI) and Power Engineers Training Society (PETS). Programmes of rural electrification are within the purview of Rural Electrification Corporation (REC) which is a financing agency.

NATIONAL AND REGIONAL POWER GRID

Significant progress has been made in expansion of transmission and distribution facilities in the country. Total length of transmission lines of 66 kv and above increased from 10,000 ckt (circuit) km in December 1950 to 1.93 lakh ckt km in March 1989. Highest transmission voltage in the country at present is 400 kv and about 17,100 ckt km of 400 kv lines had been constructed up to March 1989 and about 15,000 ckt km of these are in actual operation.

Prior to Fourth Plan, transmission systems in the country were developed more or less as state systems, as generating stations were built primarily in state sector. When state transmission systems had developed to a reasonable extent in Third Plan, potentiality of inter-connected operation of individual state systems with other neighbouring systems within the regions (northern, western, southern, eastern and north-eastern) was thought of. Fairly well inter-connected systems at voltage of 220 kv with progressive overlay of 400 kv are presently available in all regions of the country except north-eastern region. With creation of two generation corporations, namely, National Thermal Power Corporation and National Hydro-Electric Power Corporation in 1975, Centre had started playing an increasingly larger role in development of grid systems.

The 400 kv transmission systems being constructed by these organisations as part of their generation projects, along with 400 kv inter-state and inter-regional transmission lines would form part of national power gird.

National power grid will promote integrated operation and transfer of power from one system to another wih ultimate objective of ensuring optimum utilisation of resources in the country. India now has well integrated regional power systems and exchange of power is taking place regularly between a large number of state systems which greatly facilitates better utilisation of existing capacity.

REGIONAL ELECTRICITY BOARDS

In order to promote integrated operation of power systems, the country has been divided into five regions, namely, north, west, south, east and north-east. Regional electricty boards were set up in 1964 in each of these regions. Northern region covers Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Uttar Pradesh, Chandigarh and Delhi; western region covers Gujarat, Madhya Pradesh, Maharashtra, Goa, Daman and Diu and Dadra and Nagar Haveli; southern region covers

Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Pondicherry; eastern region covers Bihar, Orissa, West Bengal and Sikkim, and north-eastern region covers Assam, Manipur, Meghalaya, Nagaland, Tripura, Arunachal Pradesh and Mizoram.

REGIONAL LOAD DESPATCH CENTRES

In order to coordinate operation of regional grids of the constituent power systems and to optimise utilisation of existing generation capacity, regional load despatch centres (RLDCs) have been set up in each region which function under regional electricity boards. Central Electricity Authority extends overall supervision over RLDCs.

By Fifth Plan, necessary action was taken to establish permanent RLDCs in northern, western and eastern regions with facilities like on-line computers for data acquisition and processing, telemetry, system diagram boards, etc. Permanent RLDCs had been commissioned during 1984 in western and northern regions and in 1986 in eastern region. They are monitoring operation of power systems in these regions. RLDC in southern region is functioning with system diagram board, PLCC speech links, telemetry, minimum telemetry, teleprinting and load frequency control systems, etc. Design studies for modernisation of load despatch facilities in the region have been initiated In north-eastern region, an interim load despatch centre is operating. A scheme report for establishment of a permanent regional load despatch centre has been techno-economically appraised by CEA and is being processed for investment decision.

STATE ELECTRICITY BOARDS

State electricity boards have been established in 18 out of 25 states. These are mainly responsible for generation and distribution of electricity in their respective states. Arunachal Pradesh, Goa, Manipur, Mizoram, Nagaland, Sikkim and Tripura are yet to establish their electricity boards.

TELECOMMUNICATION FOR POWER SECTOR

Efficient operation of integrated power systems through modernised computer-based load despatch centres is vitally dependent on efficient data transfer over long distances. This has established need for developing a highly reliable communication system dedicated to power sector delinked from public communication network. Subsequent to an indepth analysis of requirements carried out by Planning Commission in association with power sector and various communication agencies, Central Electricity Authority is developing a master communication plan for power sector as whole with consultancy assistance of a foreign consultant. Concrete schemes would be framed based on modern dedicated communication systems like satellite, optical fibre, digital radio techniques, etc., consistent with above master plan.

REGIONAL COOPERATION

Chukha Hydro-Electric Project in Bhutan with an installed capacity of 336 mw (4x84 mw) along with associated transmission lines to evacuate power to various places in Bhutan and up to Indian border has been under implementation with technical and financial assistance from Government of India. The project has been set up at a cost of Rs 243.71 crore. All four units of the project had been commissioned in September and October 1986 and March and August 1988. Generating units of the Project have been operating in a satisfactory manner and supplying power through NHPC to eastern region in India besides meeting Bhutan's internal consumption. Revenue from sale of Chukha power constitutes almost three-fourth of total revenue of Bhutan from all other sources.

RURAL ELECTRIFICATION

Rural electrification schemes are financed by state governments as well as Rural Electrification Corporation. At present 4 6 lakh villages have been electrified and about 81 lakh pumpsets energised representing 79 per cent of total villages.

Target for electrification and energisation of pumpsets for 1988-89 was 17,064 villages and 4,54,405 pumpsets. Up to 31 March 1989, 19,838 villages were electrified and 5,93,258 pumpsets energised. Electrification of tribal villages and *harijan bastis* was also given special attention. Of a total of 1.1 lakh tribal villages, 65,653 had been electrified and street lighting facility extended to 2.26 lakh harijan bastis by September 1989.

ENERGY CONSERVATION

Side by side with efforts to accelerate development of available energy resources, emphasis is being built up on conservation and efficient use of energy in all sectors of economy. It is now widely acknowledged that avoiding wasteful and inefficient use of energy in all sectors of energy use whether domestic, commercial, agricultural, transport or industrial, could not only provide substantial relief from prevailing energy shortages but also save enviornment from adverse impact of increasing fossil fuel (coal, oil, etc.) use. Department of Power is nodal authority in Government to put into effect a coordinated strategy towards improvement of energy efficiency in economy as a whole. At present, various energy conservation promotion measures are being pursued in the country at different levels. These include: awareness and education programmes, studies to assess energy saving potential in different sectors and sub-sectors of energy use, energy audit studies of industrial units, training of personnel, tax incentives on energy saving equipment, financial subsidies/assistance and demonstration programmes on energy efficiency improvement methods and technologies.

POWER CORPORATIONS

NATIONAL THERMAL POWER CORPORATION

National Thermal Power Corporation(NTPC) was incorporated in November 1975 as a public sector undertaking with main objective of planning, promoting and organising integrated development of thermal power in the country. The authorised capital of the Corporation is Rs 6,000 crore.

NTPC is currently constructing and operating nine super thermal power projects at Singrauli (UP), Korba (MP), Ramagundam (AP), Farakka (WB), Vindhyachal (MP), Rihand (UP), Kahalgaon (Bihar), Dadri (UP),Talcher (Orissa) and four gas-based projects at Anta (Rajasthan), Auraiya (UP), Dadri (UP) and Kawas (Gujarat) with a total approved capacity of 15,687 mw. The Corporation is also executing transmission lines of a total length of about 20,225 ckt km. NTPC has been entrusted with management of Badarpur Thermal Power Station (720 mw) which is a major source of power to Delhi.

Installed capacity of NTPC projects stands at 9,454 mw. The Corporation has fully completed its projects at Singrauli (2,000 mw) Korba (2,100 mw) and Ramagundam (2,100 mw).

NATIONAL PROJECTS CONSTRUCTION CORPORATION

National Projects Construction Corporation (NPCC), a public sector construction company was set up in 1957 as a joint venture of Central and state governments and also as a construction contracting agency for execution of multi-purpose river valley projects, power projects and other heavy engineering projects. Over the last 32 years, NPCC has successfully completed numerous projects of national importance in irrigation, flood management, thermal and hydro-power stations, industrial projects, air fields, housing and other projects in almost every part of the country, including remote and hazardous locations.

NATIONAL HYDRO-ELECTRIC POWER CORPORATION

National Hydro-Electric Power Corporation (NHPC) was incorporated in November 1975 with objectives to plan, promote and organise integrated development of hydro-electric power. NHPC is presently engaged in construction of Dulhasti, Uri and Salal (Stage-II) hydro-electric projects (all in Jammu and Kashmir), Chamera Stage-I (Himachal Pradesh) and Tanakpur hydro-electric project (UP). NHPC is also responsible for operation and maintenance of Salal Project Stage-I (J and K), Baira Siul Project (Himachal Pradesh) and Loktak Project (Manipur).

RURAL ELECTRIFICATION CORPORATION

Rural Electrification Corporation (REC) was set up in July 1969 with the primary objective of promoting rural electrification by financing rural electrification schemes and rural electric cooperatives in the states. REC has been rendering consultancy services within and outside the country on various aspects of rural development, specially rural electrification.

REC had given loans aggregating Rs 4,214.64 crore by 1988-89 to states and state electricity boards for rural electrification schemes. During 1987-88 it advanced Rs 817.26 crore as loans, an all-time high. Loans during 1989-90 aggregated to Rs 482.26 crore by December end.

DAMODAR VALLEY CORPORATION

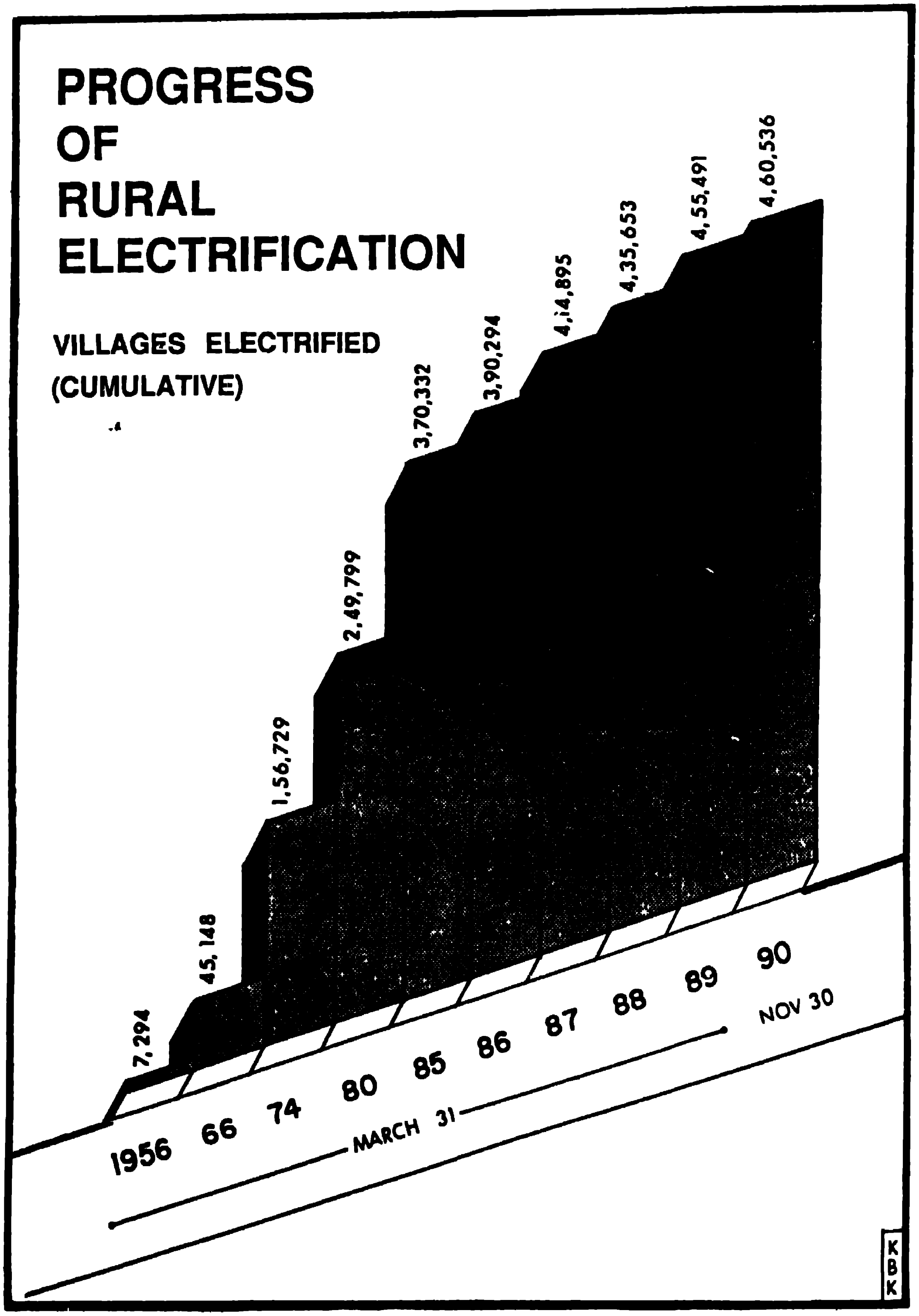
Damodar Valley Corporation (DVC) was established in 1948 under an Act of Pariliament for unified development of Damodar valley covering an area of 24,235 sq km in Bihar and West Bengal. Functions assigned to the Corporation are control of floods, irrigation, generation and transmission of power, besides activities like navigation, soil conservation and afforestation, promotion of public health and agricultural, industrial and economic development of the valley. The Corporation has three thermal power stations at Bokaro, Chandrapura and Durgapur with a total installed capacity (derated) of 1, 545 mw. It has four multi-purpose dams at Tilaiya, Maithon, Panchet and Konar. There are three hydel stations appended to Tilaiya, Maithon and Panchet dams with a capacity of 104 mw. The Corporation is installing two thermal units of 210 mw each at Bokaro 'B', three thermal units of 210 mw each at Mejia, one reversible pump turbine unit of 40 mw at Panchet and three gas turbine units of 30 mw each at Maithon. The first 210 mw unit at Bokaro 'B' was put into commercial operation in March 1987.

NORTH-EASTERN ELECTRIC POWER CORPORATION LIMITED

North-Eastern Electric Power Corporation (NEEPCO) registered in April 1976 provides and promotes an integrated power system in north-eastern region and formulates and recommends to Government through North-Eastern Council a regional policy for development of power. The Corporation has already completed Kopili Hydro-Electric Project with an installed capacity of 150 mw. It has taken up execution of a gas-based power station at Kathalguri in Assam. It will have a capacity of 280 mw including capacity of waste heat recovery units of 90 mw and also of Doyang Hydro-Electric Project in Nagaland with installed capacity of 75 mw. Another project being executed by NEEPCO is Ranganadi Hydro-Electric Project of 405 mw capacity in Arunachal Pradesh.

BHAKRA BEAS MANAGEMENT BOARD AND BEAS CONSTRUCTION BOARD

Under the Punjab Reorganisation Act, 1966, management of Bhakra Dam and reservoirs and works appurtenant thereto were managed by Bhakra Management Board. Construction of Beas Project was undertaken by Beas Construction Board. After completion of works of Beas Project, manage-


PROGRESS OF RURAL ELECTRIFICATION
VILLAGES ELECTRIFIED (CUMULATIVE)
7,294
45,148
1,56,729
2,49,799
3,70,332
3,90,294
4,14,895
4,35,653
4,55,491
4,60,536
1956
66
74
80
85
86
87
88
89
90
MARCH 31
NOV 30
KBK

ment of the project was taken over by Bhakra Management Board redesignated as Bhakra Beas Management Board (BBMB). BBMB now manages hydrol-electric power stations of Bhakra-Beas systems, namely, Bhakra right bank (660 mw), Bhakra left bank (540 mw), Ganguwal (77 mw), Kotla (77 mw), Dehar Stage-I (660 mw), Dehar Stage-II (330 mw), Pong Stage-I (240 mw) and Pong Stage-II (120 mw), all having a total installed capacity of 2,704 mw.

POWER ENGINEERS TRAINING SOCIETY

Power Engineers Training Society (PETS) was formed in 1980 as an autonomous body to function as an apex national body for meeting training requirements of power sector in the country. The Society is responsible for coordinating training programmes of various state electricity boards, power stations, etc., and supplementing these with its own training activities. It has four regional thermal power station personnel training institutes at Neyveli, Durgapur, Badarpur (New Delhi) and Nagpur. These training institutes conduct regular induction courses, in-service refresher and short term courses, on-job and on-plant training programmes for power engineers, operators and technicians of thermal power stations/state electricity boards, etc. A simulator installed at training institute at Badarpur (New Delhi) provides training to engineers and operators of 210 mw thermal units.

CENTRAL POWER RESEARCH INSTITUTE

Central Power Research Institute (CPRI) which was set in Bangalore in 1960 as a subordinate office under the erstwhile Central Water and Power Commission (Power Wing), was reorganised and registered as a society under the Karnataka Societies Act, 1960 in January 1978. CPRI functions as a National Laboratory for applied research in electric power engineering. While CPRI has a switchgear testing and development station at Bhopal, main complex of its laboratories is at Bangalore. The Institute is an apex body for research and development in power sector and conducts tests of electrical apparatus in accordance with the national/international standards so as to meet fully the research and testing needs of electrical transmission and distribution equipment. CPRI also serves as a national testing and certification authority for transmission and distribution equipment. The Institute possesses highly sophisticated laboratories comparable to those in developed countries.

CENTRAL BOARD OF IRRIGATION AND POWER

Central Board of Irrigation and Power (CBI and P) was constituted in 1927 with main objectives of facilitating dissemination of knowledge and rendering advice to state governments/state electricity boards on technical matters, especially in research. CBI and P was later registered as a society in 1975 under the Societies Registration Act, 1960. It is functioning as an autonomous body under administrative control of Ministry of Water Resources.

Various state electricity boards and other utilities have set up research stations to undertake research in various fields and on operational problems in power sector. Central Board of Irrigation and Power coordinates research activities of different research stations and disseminates results of their studies to state electricity boards and other utilities. These studies are financed by Department of Power as grant-in-aid. The Board also acts as National Committee for Conference Internationale des Grands Reseaux Electriquex (CIGRE).

NATHPA-JHAKRI POWER CORPORATION

Nathpa-Jhakri Power Corporation - joint venture of Centre and Government of Himachal Pradesh was incorporated on 25 May 1988 for execution of Nathpa-Jhakri Power Project (6 × 250 mw) with equity participation in the ratio of 3:1. The Corporation has an authorised share capital of Rs 1,000 crore. It will also execute other hydro-electric projects in the region with consent of the state government.

The Corporation has already taken up execution of Nathpa-Jhakri Hydro-Electric Project (6x250 mw) for which World Bank has agreed to extend financial assistance of 485 million US dollar. The Project is estimated to cost Rs 1,600 crore (at November 1987 price level). At present, infrastructrual works on the Project site are under execution. Drifts at power house site at Jhakri and desilting complex at Nathpa, aggregating to a length of 142 m, have been executed. Drill holes at various locations totalling a length of 329 m as per recommendations of GSI have been made. About 30 hectare of land was acquired and acquisition proceedings for 440 hectare are under way. The Project is expected to be completed within a period of about seven years and would yield benefits during Eighth Plan. Kol Dam Project (4x200 mw) also located in Himachal Pradesh would be executed by Nathpa-Jhakri Power Corporation with Soviet assistance.

TEHRI HYDRO DEVELOPMENT CORPORATION

Tehri Hydro Development Corporation was incorporated as a joint venture public sector undertaking under the Companies Act, 1956 on 12 July 1988 for execution of Tehri Hydro Power Complex in Uttar Pradesh. The Corporation with equity participation of Centre and UP in the ratio of 75:25 (for power component of Tehri Complex), will also execute other hydro-electric projects with the consent of the state government. It has an authorised share capital of Rs 1,200 crore.

Tehri Hydro Power Complex (2,400 mw) comprises: (a) Tehri Dam Project Stage-I (4 × 250 mw), (b) Tehri Pumped Storage Stage-II (4 × 250 mw), (c) Koteshwar Dam Project (4x100 mw) and (d) Transmission System to evacuate power. The Complex is being executed with Soviet technical and financial assistance.

Besides adding 2,400 mw power to northern region grid the Project would irrigate an additional 2.7 lakh hectare. It will also help in intensification of irrigation on 6.04 lakh hectare in Ganga-Yamuna plains besides supplying 300 cusecs of drinking water to Delhi.

Presently four diversion tunnels with an aggregate length of 6,600 m have been completed and the river water has been diverted through them. Excavation for spillway, stripping of dam abutment, construction of four headrace tunnels and approach adits to underground power houses are in an advance stage of construction. Progress has also been made in development of New Tehri township and rehabilitation of affected families.

POWER GENERATION AT A GLANCE

Total energy generation in the country during 1988-89 was 221.1 billion units, an increase of 9.5 per cent over that of 1987-88. This was mainly due to favourable monsoon during 1988-89. During the year, National Thermal Power Corporation (NTPC) commissioned (up to December 1989) a total generating capacity of 1,736 mw raising its total installed capacity to 9,454 mw. Ramagundam Unit-VII was commissioned nine months ahead of schedule and all units of gas projects commissioned four to nine months ahead of schedule. As a result of favourable monsoon and better performance of thermal units, generation targets fixed for 1989-90, both for thermal and hydro were expected to be achieved fully.

India has a wind energy potential of about 20,000 mw for power generation in coastal and windy sites. Efforts are being made to develop and instal wind generators, windmills and battery charging systems, such as 200 kw or higher capacity wind generators with increasing indigenous content. A total capacity of 23.55 mw out of an aggregate capacity of 31.4 mw, has already been established at 12 wind farms. Projects worth a capacity of 35 to 55 mw are under implementation. About 2,524 wind pumps have been installed for drinking water and irrigation.

In order to accelerate process of formation of the grid, a corporation under Department of Power named National Power Transmission Corporation has been set up which will take over construction, ownership, operation and maintenance of existing EHV transmission lines in the country to ensure a better integrated grid-operation and delivery of power from Central generating station to respective beneficiary states.

In the field of rural electrification, during Seventh Plan (April 1985 to November 1989) 91,339 villages had been electrified and 23,37,075 pumpsets energised. Targets for village electrification and energisation of pumpsets for 1989-90 were 14,231 villages and 4,07,460 pumpsets. During the period April-November 1989, 6,180 villages ware electrified and 2,26,589 pumpsets energised. Electrification of tribal villages and harijan bastis continued to receive special attention. Of 1.11 lakh tribal villages, 65,653 had been electrified up to September 1989. Number of villages where street lighting facilities had been extended to harijan bastis was 2,26,170 up to August 1989. There are 20 gas-based power projects which are targetted for yielding profits during Eighth Plan. Of these, seven are in Central sector and 13 in state sector. These will generate over 6,950 mw in total.

As regards energy conservation, thrust of the strategy being followed at present is on promotion of energy conservation in energy-intensive sectors by assessing efficiency of energy use through energy audits. It is intended to achieve 15 per cent reduction in specific energy consumption by 1994-95 and 30 per cent by 1999-2000 with reference to specific energy consumption level for 1987-88.

With a view to meeting increasing power demand in the country, various short term, medium term and long term strategies such as demand and management, energy conservation, better utilisation of existing facilities, integration system operation, reduction of gestation period, installation of short-gestation gas-based projects, reduction in transmission and distribution losses, streamlining procedures for environmental, forests and other clearances and greater emphasis on development of hydro-power, have been recommended during Eighth Plan. Centres for integrated rural energy planning (IREP) are being set up at Bangalore, Shillong, Lucknow and Kheda. Centre set up in Delhi has already started functioning. These centres would impart training to manpower at village, block and state levels, and undertake and organise R and D activities for decentralised area-based integrated rural energy plans and projects.

COAL

Coal is an important energy source which is playing a crucial role for overall development of economy and will continue to do so as our petroleum reserves are scarce. Coal and lignite account for about 60 per cent of the country's commercial energy consumption. Besides, coal is also an essential input in steel and carbo-chemical industries.

COAL RESERVES

Coal reserves in the country as per assessment made by Geological Survey of India up to January 1990, are 18,604 crore tonnes for coal seams of 0.5 metre and above in thickness down to a depth of 1,200 metre. Distribution of coal reserves in different states is shown in table 19.2.

TABLE 19.2 DISTRIBUTION OF COAL RESERVES

STATE	(Crore tonne)
(a) Andhra Pradesh	1,060
(b) Arunachal Pradesh	9
(c) Assam	29
(d) Bihar	6,116
(e) Madhya Pradesh	3,265
(f) Maharashtra	555
(g) Meghalaya	46

TABLE 19.2 (*Continued*)

STATE	(Crore tonne)
(h) Nagaland	20
(i) Orissa	4,226
(j) Uttar Pradesh	106
(k) West Bengal	2,990
Total	18,604

1 Total may not tally due to rounding off

MAJOR COALFIELDS

Major coalfields of the country are: Raniganj, Jharia, East Bokaro and West Bokaro, Pench-Kanhan, Tawa Valley, Singrauli, Talcher, Chanda-Wardha, Godavari Valley, etc.

PRODUCTION

Coal has been recognised as a primary source of raw material for meeting metallurgical and energy requirements of the country. Coal resources are being developed in a manner that the requirement of coal of different consuming industries is met in full and, therefore, dependence on oil is reduced to the extent it is feasible. Growth of coal production after nationalisation of industries in 1972 which was around 1.7 crore tonne at that time rose to a level of 19.5 crore tonnes in 1988-89. This has placed India into fifth position on global map. The industry is programmed to take greater strides in the coming years. During 1989-90 production was expected to reach 20.7 crore tonnes. Strategies for higher production have been: (i) increasing production from existing mines through marginal improvement; (ii) reorganisation/reconstruction of existing mines having upgradation of production through mechanisation, and (iii) opening up new mines both underground and open-cast adopting latest technology.

DISTRIBUTION OF COAL

Distribution of coal to consumers other than coking coal used for metallurgical purposes is decontrolled. Coking coal used for metallurgical purposes is under statutary control of coal controller and is regulated under the Collieries Control Order, 1945. The standing linkage committee set up in Department of Coal, undertakes responsibility of distribution of coal to power houses and cement plants which are in coal sector. Distribution of coal to other consumers is made by coal companies which make allotment of coal to actual users as per advice received from various responsible authorities. Allocation of soft coke to various states/union territories has been taken over by the Department from April 1985. Soft coke allocations are made on half-yearly basis after discussions with state governments, Railways and Ministry of Civil Supplies.

Despatch of coal during 1988-89 to major coal consuming industries is given in table 19.3.

TABLE 19.3 DESPATCH OF COAL

(Lakh tonne)

Power	Steel	Loco	Cement	Fertilisers	Soft Coke making	Brick Kiln other industries
1,043.7	245.7	63.5	95.5	40 9	17.4	351 0

PROJECTS AND PLANNING

Coal mining projects costing up to Rs 20 crore are sanctioned by coal companies themselves and those costing more than Rs 20 crore by Government. As on 1 January 1989 number of projects sanctioned since nationalisation of coal industry in 1973 costing about Rs 2 crore and above was 454. A total investment of Rs. 12,000 crore has been invested in these projects, Of these, 313 are coal mining projects and the remaining non-mining projects like washeries, fire control projects, captive power plants, water supply schemes, etc. These projects when completed will have a capacity of 2,542.9 lakh tonnes of coal per annum. Total investment proposed for Eighth Plan (1990-95) is Rs 20,400 crore. Of this, Rs 16,570 crore and Rs 3,830 crore are for coal sector and Neyveli Lignite Corporation respectively.

MINING AND MINING TECHNOLOGY

Coal mining in India first started at Raniganj, West Bengal in 1774. After independence, particularly since nationalisation of coal mines, there has been a rapid stride in coal mining activities and coal production rose from about 3.2 crore tonnes in 1950 to 19.45 crore tonnes in 1988-89 and is slated to go up to 20.70 crore tonnes. By the turn of the century, coal production is expected to reach around 40 crore tonnes. Coal production in the country is now completely in public sector except captive coal mines of a private sector steel compnay.

Coal production in public sector is managed mainly by Coal India Limited (C.I.L.) through its seven subsidiary companies, namely, Eastern Coalfields Ltd. (E.C.L.), Bharat Coking Coal Ltd. (B.C.C.L.), Central Coalfields Ltd. (C.C.L.), Northern Coalfields Ltd. (N.C.L.), South Eastern Coalfields Ltd. (S.E.C.L.), Western Coalfields Ltd. (W.C.L.) and Central Mining Planning and Design Institute Ltd. (C.M.P.D.I.L.). The Singareni Collieries Company Ltd. (S.C.C.L.), a joint venture of the Centre and Andhra Pradesh is also engaged in coal production.

Most significant and far-reaching change embracing various spheres of mining activities relates to 'mining technology'. It has witnessed various revolutionary developments in coal sector since independence of the country and particularly after the nationalisation of coal mining in 1971-73. Starting from a scratch in 1947 about 95 per cent of the requirement of mining equipment is now available indigenously. There were only three coking coal washeries in the country at the beginning of Second Plan. The country has now 19 coking coal washeries with an annual throughput capacity of 3.286 crore tonnes.

CONSERVATION AND SAFETY

A major thrust for conservation of coal is being provided by taking up various schemes for scientific investigation and actual field trial under Science and Technology Plan of Department of Coal. Coal Conservation and Development Advisory Committee constituted under the Coal Mine (Conservation and Development) Rules, 1975 looks after conservation and safety of coal mines. A number of research and development activities in coal sector are carried out under overall guidance and supervision of standing scientific and research committee of the Department of Coal. The research is carried out in the fields of production, productivity, safety, coal preparation, coal utilisation, environment and ecology.

One of the principal objects of nationalisation of coal mines was to improve standard of safety in coal industry and prevent exploitation of coal workers. Safety situation in coal mines has been speedily imporving since nationalisation of mines in 1973. Scientific mining, introduction of safety technology, extending open-cast mining and greater involvement of workers in safety measures are some main factors responsible for overall improvement of workers in the safety situation in the coal industry. A standing committee on safety in coal mines regularly reviews safety standards in coal mines. It is a tripartite body in which members of coal industry, central trade unions and DGMS are represented Coal India has also its own safety board and safety committees at units/areas at company levels.

WELFARE OF COAL MINERS

Coal industry employs over 7 lakh workers and, therefore, increasing administrative and financial provisions are being made for welfare of workers. Thrust has been on improving housing, water supply, medical and educational facilities. Efforts have been also made to improve general environmental and ecological conditions in coal fields by planting more trees and suppressing dust to the extent feasible.

LIGNITE

Current estimate of lignite reserves in India is about 629 crore tonnes, 80 per cent occurring in Tamil Nadu. Smaller deposits exist in Gujarat, Rajasthan and Jammu and Kashmir. Neyveli area of Tamil Nadu contains about 330 crore tonnes of which 200 crore tonnes fall in the proven category. Neyveli lignite has much less ash content than the average Indian coal and is consistent in quality.

NEYVELI LIGNITE CORPORATION

Lignite reserves at Neyveli are being exploited by Neyveli Lignite Corporation (NLC) Ltd., which was incorporated in 1956. NLC's industrial complex at present comprises following units: (i) lignite mine I-65 lakh tonnes capacity per annum; (ii) lignite mine II-47 lakh tonnes capacity per annum; (iii) thermal power station I linked to lignite mine I-600 mw; (iv) thermal power station II Stage I linked to lignite mine II stage I-630 mw; (v) briquetting and carbonisation plant—3.27 lakh tonnes per annum, and (vi) fertiliser (urea) plant-1,52 lakh tonnes per annum.

Expansion of second mine and second thermal power station is under implementation. Capacity of second mine is being expanded from 4.7 million tonnes per annum to 10.5 million tonnes per annum. Installed capacity of second thermal power station is being increased from 630 mw to 1,470 mw by adding four units of 210 mw each. A scheme for addition of one more unit of 210 mw to second thermal power station Stage I has been sanctioned.

NLC has been the mainstay of power supply in Tamil Nadu for the past few years. NLC is unique enterprise both in mining and power generation. Its power houses are the only units in the country which use lignite as fuel. Apart from achievements in production and productivity. NLC has an extremely creditable record in environmental development. The Corporation has been entrusted with the task of developing lignite deposits in Rajasthan and coordinating activities for exploration of lignite all over India including Tamil Nadu, Pondicherry, Rajasthan, Gujarat and Jammu and Kashmir.

OIL AND NATURAL GAS

Petroleum industry in India has made headway only after independence. Beginning from a modest level of indigenous crude production and refinery crude throughput of around 2.5 lakh tonnes and consumption of petroleum products of 34 lakh tonnes in 1950-51, crude oil production during 1988-89 reached a level of about 3.20 crore tonnes and consumption level at around 5.2 crore tonnes. Production was likely to reach 3.4 crore tonnes during 1989-90. About 1.8 crore tonnes of crude oil and 62.6 lakh tonnes of petroleum products were imported to meet the country's requirement in 1988-89. During the same period, 23 lakh tonnes of petroleum products were exported. Net import of petroleum products was 39.6 lakh tonnes. Refineries crude throughput during 1988-89 stood at about 4.88 crore tonnes. Net import of crude oil and petroleum products during 1989-90 was estimated to be 1.96 crore tonnes and 53.5 lakh tonnes, respectively. Production of crude oil during 1988-89 registered an increase of 16.83 lakh tonnes over that of 1988. The target for 1989-90 was 5.08 crore tonnes.

Oil industry in India is divided into three broad segments: (i) oil exploration and production; (ii) refinery and marketing, and (iii) petrochemical and downstream units.

EXPLORATION AND PRODUCTION

Oil exploration and production started in India in an extensive and systematic way after the setting up of Oil and Natural Gas Commission (ONGC) in 1956. With acquisition of shares of Burmah Oil Company by Government in 1981, Oil India Limited (OIL) became the second public sector undertaking engaged in oil exploration and production in the country. Besides areas in eastern region where OIL was conducting exploration, they have now extended their exploration activities to Mahanadi basin and parts of Rajasthan and Andaman.

Exploratory efforts envisaged during Seventh Plan (1985-90) were nearly three times that of Sixth Plan. New exploration stragegy of Seventh Plan placed emphasis on intensive exploratory surveys and drilling in order to add to petroleum reserves and augment production as early as possible. In order to supplement efforts of ONGC and OIL, Government in 1986-87 invited experienced foreign oil companies to take up oil exploration in 27 blocks offshore; 12 bids covering nine blocks were received from seven foreign oil companies and progressed with these oil companies. Further, arrangements have been made for taking up intensive intergrated exploration with Soviet assistance in the Cambay, Kaveri and Bengal basins. Works have already started in the Kaveri and Cambay basins.

In 1988-89, oil had been discovered in Gujarat, Andhra Pradesh and Assam. In offshore areas, oil has been discovered at six new places and further work is going on to bring these discoveries to commercial production as early as possible. Early production systems have been developed in Gujarat, Assam and Tripura.

Accelerated efforts in oil exploration and development have paid dividends by way of increased production of crude oil. At the beginning of 1980-81, annual production of crude oil in India was 105 lakh tonnes. In 1988-89 oil production increased to 320 lakh tonnes. The balance recoverable reserves of crude oil increased from 36.6 crore tonnes as on 1 January 1980 to about 72.6 crore tonnes as on 1 January 1989.

There has also been significant increase in the production of natural gas consistent with increase in the balance recoverable reserves of gas since the beginning of the current decade. Gross production of natural gas increased from 2.36 billion cubic metre in 1980-81 to 13.22 billion cubic metre in 1988-89. The balance recoverable reserves of natural gas increased from 352 billion cubic metre as on 1 January 1980 to 648 billion cubic metre as on 1 January 1989.

REFINING

There are at present 12 refineries in the country, all in public sector. Total refining capacity as on I April 1989 was 51.85 MTPA (including two MTPA swing refining capacity at HPCL's Bombay refinery) as against 31.80 MTPA in 1980-81.

With increase in refining capacity, there has also been substantial increase in refinery crude throughput in the country. Refineries curde throughput which was 258 lakh tonnes in 1980-81 increased to 429 lakh tonnes in 1985-86 and 488 lakh tonnes in 1988-89. This constitutes significant step-up in both refining capacity and refineries crude throughput since 1980-81.

Burmah-Shell Refinery at Trombay and Caltex Refinery at Vishakhapatnam together with their marketing associates were taken over by Government in 1976.

Burmah-Shell Refinery was renamed as Bharat Petroleum Corporation Ltd. (BPCL) and Caltex Oil Refining (India) Ltd. was amalgamated with Hindustan Petroleum Corporation Ltd. (HPCL) in March 1978. Public sector refineries at Guwahati, Barauni, Koyali, Haldia, Digboi and Mathura are owned by Indian Oil Corporation Ltd. (IOC) while those at Cochin and Madras are owned by joint sector companies. Refinerywise capacities and acutal crude throughput during the last six years are given in table 19.4.

COCHIN REFINERIES

Cochin Refineries Ltd. (CRL) was incorporated in September 1963 with a designed capacity to process 25 lakh tonnes of crude oil per annum which after the expansion of the refinery in August 1973 was raised to 33 lakh tonnes per annum. It was further increased to 45 lakh tonnes after completion of the expansion scheme in 1984-85. Its paid-up capital as in March 1989 was Rs 68.47 crore.

MADRAS REFINFRIES

Madras Refineries Ltd. (MRL) was incorporated as a company in December 1965 with an authorised capital of Rs 13.50 crore pursuant to the agreement between Government of India, National Iranian Oil Company and AMOCO India Inc of USA. Capacity of this refinery has increased to 56 lakh tonnes per annum. Paid-up capital of the undertaking as in March 1989 was Rs 114 crore.

Overall capacity utilisation in refineries during 1986-87 and 1987-88 has remained well above the level of 90 per cent and increased to 100.2 per cent in 1988-89 as against 74-76 per cent of the world as a whole during 1985 and 1986 respectively. Government has already approved the proposal to set up a refinery of 60 lakh tonne capacity at Karnal (Haryana) and has also approved preparation of detailed project report for Mangalore refinery. Karnal Refinery is proposed to be established in joint sector as a joint venture between IOC and Tata Chemicals Ltd., and 30-lakh tonne Mangalore Refinery is to be set up jointly by HPCL and Indian Rayon Ltd. Government has initiated action to implement/approve these projects. In addition it has given stage I clearance for preparation of detailed feasibility report for setting up of a 3 MTPA grass root refinery at Numaligarh in Assam.

TABLE 19.4 REFINING CAPACITY AND CRUDE THROUGHPUT

Refinery	Capacity as on 1 April 1989 (Lakh tonne)	1984-85	Actual throughput (Lakh tonne) 1985-86	1986-87	1987-88	1988-89
1 IOC, Digboi	5 0	5 31	5 29	5 5	5 5	5 74
2 HPCL, Bombay	35 0[1]	32 20	43 75	50 1	54 6	55 06
3 BPCL, Bombay	60.0	54 81	63 89	55 8	65 4	61 32
4 HPCL, Vishakhapatnam	45 0	12 49	26 59	37 2	36 2	37 62
5 IOC, Guwahati	8 5	7 61	7 66	8 0	8 1	7 62
6 IOC, Barauni	33 0	28 96	27.66	28 6	26 4	28 15
7 IOC, Koyali	95 0	77 77	78 30	78 4	84 4	86 56
8 CRL, Cochin	45 0	8 72	27.49	41 7	41 1	47 61
9 MRL, Madras	56 0	34 13	50 57	51 9	51 3	54 76
10 IOC, Haldia	27 5	23 65	28 22	26 2	28 1	26 36
11 BRPL, Assam	13 5	7 52	8 93	10 1	11 1	11 66
12 IOC, Mathura	75 0	62 39	60 75	63 5	65 3	65 57
TOTAL	498.5[1]	355 56	429 10	457 0	477 4	488 03

[1] Excludes 20 lakh tonnes per annum of swing refining capacity available at HPCL, Bombay

ENERGY CONSERVATION SCHEMES

Refineries are implementing various energy conservation schemes which include: (a) revamping/replacing furnaces; (b) replacement of boilers; (c) addition of air preheaters/economisers, and (d) addition of some more heat exchangers. These will save several crore rupees worth of petroleum fuel.

MARKETING AND DISTRIBUTION

Marketing and distribution network of Indian petroleum industry is fairly widespread and by and large under control of public sector oil companies. Apart from over 3,578.8 km of product pipeline, the industry had a network of about 14,481 MS/HSD retail outlets, 5,723 LDO/kerosene dealers and over 3,537 LPG distributors as on 1 April 1989. Since marketing and distribution network is directly under control of public sector oil companies, this generally ensures fair distribution of products all over the country at stipulated prices. An Oil Price Review Committee has been set up in September 1989 to examine indigenous crude oil prices and allied matters.

CORPORATIONS

INDIAN OIL CORPORATION

Indian Oil Corporation Ltd. (IOC) was set up in September 1964 by amalgamating Indian Refineries Ltd. (estd. in 1958) with Indian Oil Company Ltd. (estd. in 1959). The Corporation has three Divisions, namely, (i) Marketing Division with headquarters at Bombay; (ii) Refineries and Pipelines Division with headquarters at Delhi, and (iii) Assam Oil Division with headquarters at Digboi.

IOC has a research and development centre at Faridabad in Haryana. The centre provides technical service to customers and is engaged in development of sophisticated lubrication oils. It is actively working on possibilities of production and utilisation of viable alternate substitute fuels. IOC is also having a wholly-owned subsidiary called Indian Oil Blending Ltd. (IOBL) which is engaged in blending lubricants.

Market share of the Corporation was 55.7 per cent of total oil industry's sales by November 1989. The Corporation had in existence 1,855 cooking gas (LPG) distributorships, 5,702 retail outlet (petrol/diesel) dealerships and 3,034 kerosene/light diesel oil dealerships in the country.

BHARAT PETROLEUM CORPORATION LTD

Following Govrrnment's acquisition of two Burmah-Shell companies in January 1976, name of Burmah-Shell Refineries Ltd. was changed to Bharat Refineries Ltd. from 12 February 1976. Being an integrated refining and marketing company, name of the Company was changed to Bharat Petroleum Corporation Ltd. (BPCL) from 1 August 1977. The Company is engaged in processing of crude oil in its refinery at Bombay and storage, distribution and marketing of petroleum products in the country. In addition it is in the process of diversifying petro-chemicals using certain refinery streams as feedstock.

Market share of BPCL in 1988-89 was 18.7 per cent of total oil industry's sales. As on 1 April 1989, the Company had a total of 704 cooking gas (LPG) distributorships, 3,822 petrol/diesel retail outlets and 867 kerosene oil/LDO dealerships.

HINDUSTAN PETROLEUM CORPORATION

Hindustan Petroleum Corporation Ltd. (HPCL) was set up on 15 July 1974 by acquiring assets in India of ESSO Eastern Inc. USA and became wholly Government-owned company. On 31 December 1976 Government acquired Caltex Oil Refining (India) and merged it with HPCL. Main activities of HPCL are refining of crude oil, manufacturing lubricating base oil, manufacturing and blending of lubricants, grease and petroleum products and related automative accessories all over the country and marketing of pertoleum products including LPG.

Market share of HPCL in 1988-89 was 19 per cent of total oil industry's sales. As on 1 April 1989, the Company had a total of 1,092 cooking gas (LPG) distributorships, 3,820 retail outlets (petrol/diesel) and 1,544 kerosene/light diesel oil dealerships.

LUBRIZOL INDIA LTD

Lubrizol India Ltd. was incorporated in July 1966 under the Companies Act in pursuance of an agreement between Government of India and Lubrizol Corporation, USA, in December 1965. The Company manufactures chemical additives for use in petroleum-based fuels and lubricants needed for core sectors of economy. It also manufactures some major intermediates locally.

IBP COMPANY LIMITED

IBP Co. Ltd. has three divisions, namely, Oil, Chemical and Engineering. Oil Division has a country-wide retail network, marketing petroleum products which it obtains from other oil companies in absence of its own refining facility at present. The Company is now in the process of setting up its own refinery in Assam under Assam Accord with equity participation of Assam government.

The Division has recently commissioned a tube oil blending plant at Calcutta with a capacity of 35,000 MTPA. The Company is poised to launch its own brand of tube oils shortly. It is also in the process of setting up its own bulk storage and distribution facilities at various locations in the country.

Chemical Division manufactures industrial explosives whereas Engineering Division has made a mark in the field of high vacuum technology (cryocans, simulated space chambers, etc.) besides producing LPG cylinder valves and regulators. The Company is also conducting experiments related to usage of CNG (Compressed Natural Gas) in petrol driven vehicles as a substitute. Other plans of the Company include separation of LPG from natural gas, bitumen emulsions, second tube oil blending in northern India, etc.

NATURAL GAS

Natural gas is emerging as an important source of commercial energy in view of large reserves that have been established in the country particularly in South Basin off West Coast of India. As on 1 January 1985, India had 47,900 crore cubic metre of recoverable gas reserves which had increased to 64,755 crore cubic metre by January 1989. There has been substantial increase in supply of natural gas. Against the supply of 807 crore cubic metre in 1988-89, supply in 1989-90 was estimated to the tune of 940 crore cubic metre. Oil strikes at Kaveri Offshore and at Nada in Cambay Basin as also gas found at Tanot in Jaisalmer Basin in Rajasthan were major discoveries during 1988-89. Another noteworthy feature was commencement of production from South Basin Gas Field since September 1988. During 1989-90 oil/gas structures had been discovered in Adiyakkamangalam in Tamil Nadu, Andada in Gujarat, Khovaghat in Assam, Lingala in Andhra Pradesh, Bombay Offshore and Kuchchh Offshore. Natural gas is also making significant contribution to household sector by way of LPG extracted from associated gas. About 30 per cent of the country's output of LPG comes from this source.

GAS AUTHORITY OF INDIA LIMITED

Gas Authority of India Limited (GAIL) was incorporated in August 1984 with an immediate objective of construction of the cross-country HBJ gas pipeline. GAIL could complete laying of HBJ gas pipeline including its extension from Babrala to Delhi. However, associated systems of the pipeline such as telecommunication, compressor stations, etc., are yet to be fully commissioned. During 1989-90, GAIL started supply of gas to NTPC's power plants at Anta and Auraiya and Delhi Electricity Supply Undertaking. GAIL is implementing LPG Recovery Project at Bijaipur in Madhya Pradesh. Government has also in principle agreed to assign GAIL as one of the marketing compaines for LPG in some specified areas.

RESEARCH AND DEVELOPMENT

Research and development activities in crude oil and gas exploration and production sector have mainly remained confined to institutes and R and D centres of two organisations *viz.*, Oil and Natural Gas Commission and Oil India Limited which are having their separate set-ups. ONGC has established five research and development institutes *viz.*, Keshava Deva Malaviya Institute of Petroleum Exploration (KDMIPE), Dehra Dun, Institute of Reservoir Studies (IRS), Ahmadabad, Institute of Drilling Technology (IDT), Dehra Dun, Institute of Egnineering and Ocean Technology (IEOT), Bombay and Institute of Production Technology (IPT), Bombay. Functions of these are: (i) KDMIPE provides back-up services to exploration efforts of ONGC and remains intimately connected to present exploration problems as well as futuristic issues. Basic and applied research activities are carried out. Some frontier areas and technologies for exploration requiring new and innovative techniques are also attended to; (ii) IRS provides R and D back-up for preparation of developmental plans for ONGC's oilfields under development stage, besides specific R and D efforts in areas of enhanced oil recovery with a view to developing appropriate techniques/technologies on case-to-case basis. The Institute also identifies and develops techniques for stimulation of wells, introduction of artificial lift systems, etc., for different fields; (iii) besides operation-related R and D effort as a regular work, IDT attends to development of techniques for drilling difficult wells in high pressure/high temperature regime as well as super deep wells in tectonically complex areas. R and D with a view to optimising cost of drilling is also attended to; (iv) IEOT carries out design review for all offshore platforms, deep water production systems and floating production systems. It is striving to achieve both analytical and innovative acumen to solve situation-specific-cost-effective methods to reduce investments and increase returns on marginal fields' development, and (v) IPT has been set up to provide continuous back-up to situation-specific production problems, long term application of appropriate techniques and technologies.

ONGC is presently setting up two more institutes, namley, Institure of Bio-Technology and Geo-Tectonic Studies (IBT and GTS), Jorhat and Institute of Petroleum Safety and Enviornment Management (IPSEM), Goa.

OIL CONSERVATION

Demand, management and conservation of oil/POL has assumed vital importance in view of volatile nature of international oil market and present gap between domestic demand and supply of oil which is expected to grow in future. Studies made recently by various groups have identified energy saving potential of 20-30 per cent in transport, agriculture and industrial sectors with moderate investments and payback period of less than three years. In the petroleum sector, Petroleum Conservation Research Association (PCRA) is engaged in coordinating activities in conservation of petroleum products since 1976. PCRA organises field activities, education campaigns and research and development activities in industrial, transport, agriculture and domestic sectors. During the last 10 years it has been able to effect cumulative savings of petroleum products worth about Rs 450 crore by promoting various conservation activities. PCRA planned to intensify its efforts to achieve a total saving of Rs 492 crore during Seventh Plan.

PETRO-CHEMICALS

Department of Petroleum and Natural Gas is also implementing a number of programmes for production and development of petro-chemicals in the country. Bongaigaon Refinery and Petro-Chemicals Ltd. (BRPL) was incorporated in 1974 as a Central government undertaking with the objective of installation of a refinery and a petro-chemical complex having Xylene, Dimethyl Terepthalate and PSF units. Authorised share capital of the Company initially was Rs 50 crore which was increased to Rs 200 crore in January 1984.

Paid-up capital of the Company was Rs 199.82 crore. Apart from this, many other refineries such as Bharat Petroleum Corporation Ltd., Hindustan Petroleum Corporation Ltd., Cochin Refineries Ltd., Madras Refineries Ltd. and Indian Oil Corporation are also implementing a number of petro-chemical projects. In Seventh Plan, an outlay of Rs 243 crore had been provided for implementing various schemes of petro-chemicals by these oil companies.

ENGINEERING AND CONSULTANCY SERVICES

Engineers India Ltd. (EIL) was incorporated in 1965 and became a wholly Government-owned undertaking in 1967. Authorised capital of EIL was Rs two crore and paid-up capital Rs 100 lakh as on 31 March 1987. The Company renders design engineering and technical consultancy services to organisations both in public and private sectors in petroleum refining, pipelines, petro-chemicals, fertilisers, chemicals, cement, paper, power, non-ferrous metallurgical plants, ocean engineering and other process-related industries. In addition it offers specialised services in process, design and development, commissioning and operation services, design of heat and mass transfer equipment, environment engineering planning and scheduling, cost engineering and material selection problems of process plants as well as procurement, inspection, transportation and customs clearance service.

INDIGENISATION

As a result of the policy of Government to encourage indigenous capabilities for supporting exploration and production activity, a number of facilities have been created indigenously for manufacture of equipment and providing oil field services. Whereas in 1981-82 only about 25 per cent of our requirements were met from indigenous sources, at present over 58 per cent of the requirements are met from domestic sources. Indigenous units are given special facilities and price preference to enable them to compete successfully with foreign bidders and to provide efficient service and equipment at competitive rates. Many public sector units like Bharat Heavy Electricals Ltd., Hindustan Shipyard, Mazagon Dockyard Ltd. and Bharat Pumps and Compressors are at present supplying equipment to oil industry. Some items for which indigenous capabilities have been established include deep drilling rigs, drill ships, jack-up rigs, offshore supply vessels, well-platforms and multi-purpose supply vessels. Some Indian companies/joint ventures have also started providing oil field services to Oil and Natural Gas Commission.

NON-CONVENTIONAL ENERGY SOURCES

Government gives high priority to promotion and utilisation of new and renewable sources of energy (NRSE) as supplement to fast depleting conventional sources of energy and also to meet energy needs of rural areas. Energy planners and scientists of the world are now thinking in terms of decentralised energy systems and to cope with environmental pollution emanating from generation and utilisation of energy on conventional lines. India had taken a lead in this regard by setting up a high-powered Commission for Additional Sources of Energy (CASE) on 12 March 1981 and Department of Non-Conventional Energy Sources on 6 September 1982. While CASE formulates the policies and programmes, latter is responsible for their implementation. The Department is a part of Ministry of Energy. It also functions as secretariat to CASE. It has set up regional offices at Chandigarh, Hyderabad, Bhopal, Ahmadabad, Guwahati and Lucknow. A large number of monitoring units have been set up all over the country to monitor biogas programme.

Development and utilisation of new and renewable sources of energy systems and devices have been remarkable during the short span of time since the Department came into existence. This can be gauged from the fact that various techniques and systems are now available for demonstration and even commercialisation. Today there are more than 150 manufacturers in the country engaged in production and development of different renewable energy systems and devices. A large number of departments, public sector undertakings, autonomous bodies, private institutions and individuals have adopted systems and devices such as water-heating systems, windmills, photovoltaic lights and pumps, improved *chulhas* and biogas plants. Improved chulha, solar cooker, biogas plants and water pumping windmills are the most popular of such devices. According to the paper entitled *Energy-2001* perspective plan in the area of NRSE, various non-conventional sources have potential of generating/saving energy equivalent to 250 crore tonnes of coal replacement including over 15,000 mw energy generation by the turn of century which is estimated to make 20 per cent of total energy demand by the year 2001.

BIOGAS PROGRAMME

Biogas is the most important component of renewable energy supplies in rural areas. As a byproduct, biogas plant produces enriched fertiliser also. Its other benefits are improvement in sanitation, reduction in incidence of eye disease among women, easy smokeless and efficient cooking. One of the greatest merits of biogas is its versatility. It can be used for cooking, lighting and power generation.

Under National Programme on Biogas Development 12.40 lakh biogas plants have been installed producing gas equivalent to the saving of over 43.8 lakh tonnes of fuel wood valued at Rs 175.6 crore annually. Besides they are generating manure to the extent of above 211 lakh tonnes worth over Rs 174.5 crore annually. Similarly, over 500 institutional/community biogas plants have been installed for providing energy for cooking, lighting, etc., for village community as a whole. Significant progress has been made to utilise alternate feedstocks such as human excreta, agricultural residues, cotton willow dust and water hyacinth. Construction of latrine-linked biogas plants is gaining popularity which besides providing cooking energy is improving sanitation and environment. Additionally it dispenses with age-long practice of manually handling human excreta. About 71,000 latrine-linked biogas plants had been installed by December 1989.

IMPROVED CHULHA

The greatest share of energy consumed in our villages is used bv kitchens through traditional wood stoves. The Department, therefore, launched

National Improved Chulha Programme in December 1983. The programme provides for new models designed on scientific principle for varying fuels and food habits of people in the country.

Improved chulha programme has evoked tremendous response and positive action from all concerned. In view of its efficacy as smokeless chulha Housing and Urban Development Corporation (HUDCO) undertook construction/installation of one lakh improved chulhas per year under *Indira Awas Yojana* for weaker sections. HUDCO also has decided that in future house building advances will be sanctioned by it only if an improved chulha is incorporated in the design of the house.

Through this programme over 80 lakh thermally-efficient chulhas have been installed resulting into an annual saving of 56 lakh tonnes of fuel wood valued at Rs 224 crore. These chulhas are of fixed and portable types providing thermal efficiency of above 20 and 25 per cent respectively. Improved chulhas besides economising consumption of fuel wood are reducing drudgery of women associated with fuel collection, smoky kitchen and smoke-borne diseases. A target 18.27 lakh chulhas is envisaged for 1990-91 at a cost of Rs 12.50 crore.

SOLAR ENERGY

Systematic and ceaseless efforts are being made to tap scientifically the abundant solar energy available in the country. A simple and common mode in solar energy utilisation is solar thermal conversion. A large number of applications in areas particularly those where low grade thermal energy is needed, have already become commercial. These include cooking, water-heating, water desalination, space heating, crop drying, etc. Efforts are also afoot to develop economically viable solar collectors for high temperature applications. Installation of solar thermal systems and devices like solar water-heating system both for domestic and industrial application, desalination system, timber kiln, air conditioning, etc., covering an area of 1.23 lakh sq mt of collector area, has helped save/generate energy to the extent of 350 lakh kwh per annum. Over 1.40 lakh solar cookers were in use in 1989-90.

The Department has established a 50 kw solar power plant at Gwal Pahari in Haryana to generate electricity and energise 10-tonne capacity cold storage for preservation of milk or green vegetables and fruits, etc. A number of feasibility reports have been prepared to establish 30 mw capacity power plants in Rajasthan, Punjab and Gujarat. Such power plants may prove economical and effective to supply pollution-free electricity in rural/remote areas which are quite away from coalpit heads.

SOLAR PHOTOVOLTAICS

Solar photovoltaics offers instantaneous conversion of solar energy into electricity without any pollution. Under solar photovoltaic demonstration programme, over 23,000 solar photovoltaic street lights, 546 community lighting/TV systems, 1,104 solar photovoltaic water pumping systems, 1,443 domestic lighting units and 1,294 battery charging units have been installed throughout the country. So far 6,628 villages have been provided with photovoltaic street lights. Annual Plan for 1990-91 envisages an outlay of over Rs 125 crore for this purpose. It is proposed to instal 2,000 street lighting systems, 50 water pumping systems, 1,000 domestic street lighting systems and 100 kwp capacity in power plants and various other applications. Solar thermal programme during this period also includes installation of collector area of 30,000 sq mt and promoting the use of over 31,000 additional solar cookers.

Importance of this system is very high as it provides electricity at an economic cost in areas away from grid and which require small amounts of electricity for various uses. Small power packs of 1 to 25 kw are doing great service in remote and far-flung areas. A capacity of 25 tonnes for production of solar silicon (basic raw material) has been established in the country. Besides production of silicon, wafers and modules are being manufactured by a number of units. Research and development efforts are in full servicing for amorphous silicon. The Amorphous Silicon Pilot Plant set up at Solar Energy Centre with an annual capacity of 500 kwp on a single shift basis, is expected to be commissioned shortly. This programme of solar electrification in remote villages was undertaken in consultation with Rural Electrification Corporation and state electricity boards. In addition to Bharat Heavy Electricals Ltd., Central Electronics Ltd., and one more public sector company, namely, Rajasthan Electronic Instrument Ltd. have entered the field of SPV production.

GEOTHERMAL ENERGY

Research and development activities relating to cold storage unit and five kw power plant, both based on geothermal energy at Mani Karan (Himachal Pradesh) are in full progress. Pilot cold storage plant at Mani Karan using geothermal energy has shown positive results.

RURAL RENEWABLE ENERGY SYSTEMS (URJA GRAM)

Concept of rural renewable energy systems (Urja Gram) has been put into practice with initiation and setting up of integrated energy centres which fulfil energy requirement of the village through locally available renewable sources. Most of these systems centre around a community biogas plant or newly developed gasifiers for producing electric power from biomass and agricultural wastes. Other systems like windmills, wind generator, solar photovoltaic lighting, hot water systems, improved chulhas and solar cookers are supplied/ installed as per requirements/sources availability of village in question. Selection of *Urja Gram* is done after a techno-economic and feasibility survey. One hundred eight such urja grams have been established throughout the country and another 232 are under various stages of implementation. Energy surveys for 1,141 urja grams have been completed and such work is proceeding on for 485 villages.

ENERGY FROM URBAN WASTE

A pilot plant to utilise solid municipal waste for conversion of energy into electricity of 3.75 mw capacity has been established at Timarpur, Delhi. Besides energy, the plant provides for disposal of huge urban waste and environment upgradation.

POWER GENERATION

AGRO-THERMAL POWER PLANT

Department of Non-Conventional Energy Sources in collaboration with Punjab is setting up a 10 mw agro-thermal power plant based on rice husk at Jalkheri near Patiala.

10 MW AGRO-THERMAL CO-GENERATION PLANTS

The Department is cooperating with Punjab Agro Industrial Development Corporation (PAIDC) for a joint sector project of OSWAL Agro Furane being set up in Punjab for power generation component of the plant. The project envisages de-husking of large quantities of rice and utilisation of husk in the first stage to extract furfural and then to fire husk in a fludised boiler linked with co-generation plant to generate 10 mw of electricity. This cent per cent export-oriented plant will have about 5 mw of surplus electricity to be connected to the grid. This electricity can be used, *inter alia,* for irrigation purposes.

10 MW BAGGASSE BASED CO-GENERATION PROJECTS

It has been estimated that sugar industry in India can generate almost 2,000 mw as surplus electricity during crushing season. For instance a 2,000 TCD sugar mill using energy conservation principles with high steam condition boilers and back pressure turbine can generate 10 mw of electricty and sufficient process steam. After meeting factory's requirements, almost 6 mw can be surplus to be fed to the grid. Since sugar factories are normally in the rural areas, this surplus electricity could be used for irrigating sugarcane fields or industrialisation of rural areas.

SOLAR THERMAL SYSTEMS

Extension programme on solar thermal system and sale of solar cookers provide heat energy both for domestic and industrial application. Through extension programmes solar thermal systems and devices comprising 6,664 solar water-heating systems, 39 timber kilns, 36 solar dryers, 7,683 desalination systems, etc., have been installed throughout the country with a total collector area of about 85,000 sq mt. In addition over 1.54 lakh solar cookers have been sold. The programme is gaining momentum in large scale water-heating systems for hotels, hospitals and milk dairies. The Department established a solar energy centre at Gwal Pahari in Gurgaon for R and D facilities, testing and standardisation of solar energy devices, solar power house, refrigeration/air conditioning, solar passive architecture, green house technology, materials research, solar heat research and system and design engineering.

BAGGASE BASED POWER GENERATION

There are over 140 distilleries in the country which discharge high pollution effluents almost 2,000 times more polluting than city sewage. A distillery can generate 5,000-20,000 cubic meter of biogas per day. This biogas can replace 50 to 55 per cent of distillery coal requirement. Efforts are also afoot to develop and adopt technologies which will enable cleaning up of gas for use either as cent per cent biogas or for dual fuel engines coupled with generators.

BIOMASS

Biomass programme aims to promote energy plantation for providing fuel, fodder power generation through gasification technology. R and D efforts for developing fast growing varieties of trees and plants are afoot for varying agro-climatic conditions in the country. There are eight R and D centres in the country which are promoting energy plantation for further spread. So far 16,000 hectare of waste/degraded land has been brought under energy plantation. Capacity created for harnessing energy plantation into electric power is 4.4 mw. Gasifiers (318) and sterling engines (93) have already been installed in the country. Biomass programme offers a large potential of 6,000 mw power generation by the year 2001 besides helping environment upgradation, employment and income generation for rural people.

INDIAN RENEWABLE ENERGY DEVELOPMENT AGENCY LIMITED

Indian Renewable Energy Development Agency (IREDA) is registered under the Companies Act with authorised capital of Rs 10 crore as an undertaking of Department of Non-Conventional Energy Sources. IREDA aims to promote projects in non-conventional energy sources by providing soft term loans to manufacturers, traders and users. It acts as a financial intermediary with financial institutions on behalf of new and renewable sources of energy (NRSE) industries, etc. It has also received grant-in-aid from the Netherlands in respect of project financing. IREDA received a total of 133 projects till 31 December 1989 demanding loan assistance worth Rs 62.85 crore. It had sanctioned 63 projects for Rs 14.78 crore till the said date. Disbursement of loan amounted to Rs 7.67 crore in respect of 28 projects. Further, 35 projects have been sanctioned by IREDA and another 62 are in the process of appraisal. It may be mentioned that there was cent per cent loan recovery of dues in 1988-89. Projects sanctioned are spread over 11 states in the areas of biomass, solar, thermal, biogas, industrial affluents and battery power vehicles, etc.

INCENTIVES AND SUBSIDIES

With a view to motivating people at large and accelerating promotion of NRSE programmes, Government provides various fiscal and financial incentives and subsidies to manufacturers and users. Incentives are in the nature of exemption from central excise, customs duty, sales tax, direct subsidy to users, etc. Some states are also providing subsidy in addition to Central government subsidy for promotion of NRSE. Financial allocation in Seventh Plan was Rs 519 crore in Central/state sector of which the share of Central government was Rs 412.35 crore.

20 Industry

PROGRESS of industrialisation over the last 40 years has been a striking feature of Indian economic development Process of industrialisation was launched as a conscious and deliberate policy in the early fifties. In pursuance of this policy, large investment has been made in building up capacity over a wide spectrum of industries. Industrial production has made rapid strides in terms of variety, quality and quantity. There has been a substantial diversification of industrial base during this period with the consequent ability to produce a very broad range of industrial goods. Self-reliance has been achieved in basic and capital goods. Indigenous capabilities have now been established to the point of virtual self-sufficiency so that further expansion in various sectors such as mining, irrigation, power, chemicals, transport and communication can be based primarily on indigenous equipment.

Process of industrialisation has also fostered entrepreneurship and development of a wide variety of technical, managerial and operative skills. Today, the country is in a position to provide consultancy services as well as managers, technicians and skilled workers for setting up industrial projects abroad.

·A significant aspect of industrial development during the above period has been the predominant role assigned to public sector in establishment of basic industries. Public sector has taken initiative for development of various industries such as steel, non-ferrous metals, petroleum, coal, fertilisers and heavy engineering. It has also made investments in consumer industries like textiles, drugs and pharmaceuticals, cement and sugar. Number of public sector enterprises which was only five in March 1951 rose to 231 in March 1988.

In 1985-86, Government initiated a number of measures aimed at removing constraints on industrial growth and providing a more congenial environment for development. These include a scheme of re-endorsement of capacities, de-licensing of industries and broad-banding 65 selected industries (including those covered by the Monopolies and Restrictive Trade Practices Act) and also schemes for specific industries like textiles sugar, electronics, etc. A technology upgradation scheme had been introduced in August 1987 by Industrial Development Bank of India in five selected capital goods industries.

Fundamental objective of these policies is to upgrade efficiency and competitiveness of Indian industry so that Indian consumer is benefitted on one hand and our industry acquires strength to compete in external markets. As a result of these measures, industrial production recorded an average growth of over eight per cent in Seventh Plan period. Investment climate in the country is one of buoyancy and confidence.

INDUSTRIAL POLICY

Government had set out in its Industrial Policy Resolutions dated 6 April 1948 and 30 April 1956, the policy approach proposed to be pursued in industrial field. The Policy Resolution of 1948 emphasised the importance of economy for securing a continuous increase in production and equitable distribution and had laid emphasis on states' programmes by their active role in development of industries. The revised Policy of 1956 gave a more precise direction towards accelerating the rate of economic growth and speeding up industrialisation in particular expanding public sector and building up a large and growing cooperative sector. The Policy laid emphasis on the State assuming a predominant and direct responsibility for setting up new industrial undertakings and at the same time allowing private sector to develop and expand.

In pursuance of this objective as well as the need for planned development, it has been laid down that industries which are of basic and strategic importance or in the nature of public utility services, should be in public sector. Other industries which are essential and require investment on a scale which only the State could provide, have also to be in public sector. Accordingly, Government had decided to classify industries into three categories, having regard to the part which the State would play in each of them. In first category are industries the future development of which will be exclusive responsibility of the State. Second category consists of industries which will be progressively State-owned and in which the state will generally take initiative to establish new undertakings, but in which private enterprise will also be expected to supplement the effort of the State. Third category includes all remaining industries and their future development has been left to initiative and enterprise of private sector.

Seventeen groups of industries have been included in Schedule 'A' and twelve in Schedule 'B'. The rest of groups of industries come under third category.

Schedule 'A' Industries: (1) Arms and ammunition and allied items of defence equipment; (2) Atomic energy; (3) Iron and steel; (4) Heavy castings and forgings of iron and steel; (5) Heavy plant and machinery required for iron and steel production, for mining, for machine tool manufacture and for such other basic industries as may be specified by Central government; (6) Heavy electrical plants including large hydraulic and steam turbines; (7) Coal lignite; (8) Mineral oils; (9) Mining of iron ore, manganese ore, chrome ore, gypsum, sulphur, gold and diamond; (10) Mining and processing of copper, lead, zinc, tin, molybdenum and wolfram; (11) Minerals specified in the Schedule to the Atomic Energy (Control of Production Use) Order, 1953; (12) Aircraft; (13) Air transport; (14) Railway transport; (15) Ship-building; (16) Telephones and telephone cables, telegraph and wireless apparatus (excluding radio receiving sets), and (17) Generation and distribution of electricity.

Schedule 'B' Industries: (1) All other minerals except "minor minerals" as defined in Section 3 of the Minerals Concession Rules, 1949; (2) Aluminium and other non-ferrous metals not included in Schedule 'A'; (3) Machine tools; (4) Ferro-alloys and tool steels; (5) Basic and intermediate products required by chemical industries such as manufacture of drugs, dyestuffs and plastics; (6) Antibiotics and other essential drugs; (7) Fertilisers; (8) Synthetic rubber; (9) Carbonisation of coal; (10) Chemical pulp, (11) Road transport, and (12) Sea transport.

While these lists have been drawn up by Government, the Resolution permits a certain degree of flexibility and overlapping. Expansion of existing privately-owned units in industries in first category or possibility of State securing cooperation of private enterprise in establishment of new units when national interest so requires are not ruled out. Similarly private enterprise will also have the opportunity to develop in this field either on its own or with State participation. This Resolution continues to provide basic framework of the industrial policy of Government.

NEW POLICY MEASURES

For promotion of small scale and agro-based industries and changes in procedures for industrial approvals, Government has announced some policy measures effective from 31 May 1990. Salient features are: (i) investment ceiling in plant and machinery for small scale industries (fixed in 1985) would be raised from the present Rs 35 lakh to Rs 60 lakh and for ancillary units from Rs 45 lakh to Rs 75 lakh. Small scale units which undertake to export at least 30 per cent of the annual production by the third year will be permitted to step up their investment in plant and machinery to Rs 75 lakh; (ii) investment ceiling in respect of tiny units would also be increased from the present Rs 2 lakh to Rs 5 lakh; (iii) efforts would be made to identify more items for reservation in small scale sector, 836 items are at present reserved for exclusive manufacture in this sector; (iv) implementation of a new scheme of 'Central investment subsidy' exclusively for this sector in rural and backward areas capable of generating higher level of employment at lower capital cost; (v) for adequate and timely flow of credit for small scale industries, a new apex bank known as SIDBI has already been established; (vi) to widen entrepreneurial base, Government would lay particular emphasis on training of women and youth under Entrepreneurial Development Programme; (vii) special marketing organisations at Centre and state levels shall be created to assist rural artisans in marketing their products and also in supply of raw materials; (viii) in agro-processing industries growers will be encouraged to set up processing units within the framework of cooperative societies or similar institutional framework, setting up of processing units in rural areas where growers are concentrated will help in dispersal of industry and increasing employment in such areas; (ix) agro-processing industry to receive high priority in credit allocation from financial institutions; (x) for medium-sized investments, all new units up to an investment of Rs 25 crore in fixed assets in non-backward areas and Rs 75 crore in Centrally-notified backward areas will be exempt from requirement of obtaining licence/registration; (xi) for import of capital goods, entrepreneur would have entitlement to import up to a landed value of 30 per cent of the total value of plant and machinery; (xii) for import of raw materials and components, imports will be permissible up to a landed value of 30 per cent of the ex-factory value of annual production, such items on OGL will not be included within this limit; (xiii) for transfer of technology, if import of technology is necessary the entrepreneur can conclude an agreement with the collaborator, without obtaining any clearance from Government, provided that royalty payment does not exceed 5 per cent on domestic sales and 8 per cent on exports; (xiv) existing broad-banding scheme would continue. In addition, if no extra investment is required, no clearance from Government would be necessary for production and sale of any new item by existing units, excluding items reserved for small scale industries; (xv) cent per cent export-oriented units (EOUs) and units to be set up in export processing zones (EPZs) are being delicensed under the scheme up to an investment limit of Rs 75 crore, and (xvi) existing De-licensed Industries Scheme, Exempted Industries Scheme and DGTD Reigistration System will stand abolished.

REGULATION OF INDUSTRY

The Constitution demarcates legislative powers between Union and states in relation to industries. In Union List are those 'industries declared by Parliament by law to be necessary for the purpose of defence or prosecution of war' and 'industries, control of which by the Union is declared by Parliament by law to be expedient in the public interest.' In keeping with distribution of legislative powers under the Constitution, the Industries Development and Regulation Act was placed on Statute book in 1951. The Statute provides legislative framework for implementation of Government's industrial policy, as it provides for "development and regulation of certain industries".

Its principal objectives are to empower Government to license the establishment of new industrial capacities, thus directing investments into desired channels of industrial activity in keeping with national goal of development and also to regulate generally location of industrial enterprise so as to secure balanced regional development. Industrial licensing has been thus a positive instrument of planned industrial development.

INDUSTRIAL LICENSING

Industrial licensing system has been subjected to detailed scrutiny from time to time by several high level bodies. While there have been suggestions for streamlining licensing system and effecting further improvements with a view to removing irritants standing in way of achieving rapid industrial growth, it has been recognised that it is a positive instrument for achieving planned development. Process of regulatory licensing extends to industries listed in the First Schedule of the Act which number 33.

Based on policy framework provided by Industrial Policy Resolution of 1956 and several studies carried out in implementation of the policy through mechanism of industrial licensing, Government had enumberated Industrial Licensing Policy in 1970 and later in 1973. The Policy statement of 1973 took note of provisions of the Monopolies and Restrictive Trade Practices Act, 1969 (enacted to provide that operation of economic system does not result in concentration of economic power to the common deteriment, etc.) and had consolidated core industries of importance to national economy in future, industries having direct linkages with core industries and industries with a long export potential area of basic and strategic importance for growth of economy. A list of 19 groups of industries(commonly known as Appendix-I industries) which have now been increased to 33 industries was drawn up where larger houses as defined in the Monopolies and Restrictive Trade Practices (MRTP) Act of 1969 could participate and contribute to establishment of industries, provided these are not reserved for public sector or small scale sector. Large industrial houses were ordinarily excluded from industries not included in the list except where production was predominantly for exports Foreign concerns and subsidiaries and branches of foreign companies were also eligible to participate in industries specified in that list. The Policy statement of 1973 sought to promote wherever feasible and appropriate, industries in medium, small scale and ancillary sectors. It also liberalised certain aspects of industrial licensing procedure such as raising exemption limit of fixed assets of undertakings from Rs one crore to five crore for purposes of industrial licensing and reiterated the policy of reservation for the small scale sector.

Industrial Policy Statement of 1980 which is based on the Resolution of 1956, has laid emphasis on the socio-economic objectives such as optimum utilisation of installed capacity, higher productivity and employment generation, correction of regional imbalances, strengthening of the agricultural base, promotion of export-oriented industries and economic federalism, consumer protection, etc. It has liberalised industrial licencing procedure further in areas such as raising limits of investment prescribed for small scale and ancillary units, endorsement of licenses to reflect their then existing production capacity, extension of provision of automatic growth to more industries, streamlining of licensing procedures to cut delays, pollution control and preservation of ecological balance, etc. Liberalisation of industrial licencing policy and procedures to achieve a rapid industrial growth is a continuing exercise and a number of steps have been taken recently in this direction.

A scheme of broad-banding of industries has been allowed in respect of 45 groups of industries to allow them greater flexibility in production and ability to respond to demands of the market. Thirty one groups of *industries including those producing 82 bulk drugs/formulations* have been delicenced for non-MRTP/FERA companies and 72 groups of industries for locations in Centrally-declared backward areas.

A scheme for re-endorsement of capacity has also been introduced to enable undertakings to maximise their production by optimum utilisation of installed capacity. Under this scheme, licensed capacity is re-endorsed at higher levels based on capacity utilisation as well as modernisation If capacity utilisation is of the order of 80 per cent or more, the industrial licences are re-endorsed by taking the best of annual production achieved during past five years and by adding 33$^{1}/_{3}$ per cent thereof. This facility was available on an yearly basis during Seventh Five Year Plan period. Re-endorsement of capacity up to 49 per cent of licenced capacity is available to undertakings taking up modernisation, renovation or replacement of plant and machinery.

A scheme of maximisation of industrial production has been recently introduced in which maximum production achieved by an unit in any financial year between 1 April 1988 and 31 March 1990 would be re-endorsed in licence/registration certificate held by the undertaking. No restrictions apply to such re-endorsement except that the item is not reserved for small scale sector or it should be an industry included in Schedule IV or V of the exemption notification of 16 February 1973. The scheme is available to all companies including MRTP/FERA companies and for all items of manufacture. Minimum levels of economic capacity have been prescribed in respect of 108 industries. Existing units are automatically allowed to expand their capacities at these minimum economic levels.

Requirement of industrial licencing for non-MRTP/non-FERA companies has been dispensed with for projects in backward areas involving an investment of less than Rs 50 crore in fixed assets. Even for non-backward areas, limit of investment in fixed assets by non-MRTP/non-FERA companies for purpose of licencing has been raised from Rs 5 crore to Rs 15 crore. However, to discourage concentration of industries in or around big cities, certain distance restrictions have been imposed.

Government of India has already decided to establish about 100 growth centres to provide best available infrastructural facilities like power, water, telecommunications and banking for industrialisation of backward areas with an investment of about Rs 25-30 crores. Government of India, state governments and all-India financial institutions would jointly bear this cost and have to play an important role in their establishment.

In first phase, 61 growth centres in 16 major states and nine growth centres in north-eastern states, Goa and Union Territory of Pondicherry have been taken up. Allocations to states are based on three criteria mainly population, area and industrial backwardness. In consultation with state governments, locations for 50 growth centres have been approved. Twenty more locations would be decided soon.

With a view to encouraging industrial development of backward areas, export obligations in respect of MRTP/FERA companies have been reduced. In category 'A' districts (no-industry districts/special regions), no export obligations will be imposed as against 30 per cent earlier. In other backward areas, export obligation has been reduced to 25 per cent as against 50 percent applicable earlier.

DEVELOPMENT OF INDUSTRIES

History of organised industry in India may be traced to 1854 when real beginning of cotton mill industry was made in Bombay with predominantly Indian capital and enterprise. Foundations of jute industry were laid near Calcutta in 1855, mostly with foreign capital and enterprise. Coal-mining also progressed about this time. These were the only major industries which had developed substantially before First World War. During and after First and Second World Wars, a somewhat more liberal policy was adopted by authorities, such as a discriminating protection policy, which gave impetus to industrial development. Several industries rapidly expanded and a number of new industries came up, such as, steel, sugar, cement, glass, industrial chemicals, soap, vanaspati and some branches of engineering. But their production was neither adequate in quantity for meeting even low level of internal demand nor diversified in character.

PROGRESS DURING FIRST AND SECOND PLANS

During First and Second Plans growth and diversification of industry were remarkable particularly in Second Plan. Three new steel plants, each of 10 lakh ingot tonnes capacity, were set up in public sector and capacity of the two existing steel works in private sector was doubled. Foundations were laid of heavy electrical and heavy machine tool industries and heavy machine building and other branches of heavy engineering industries. Production of machinery for cement and paper industries was started for the first time. In chemical industries, advance was on a wide front, leading not only to large units and greatly increased output of basic chemicals, such as, nitrogenous fertilisers, caustic soda, soda ash and sulphuric acid, but also in manufacture of a number of new products like urea, ammonium phosphate, penicillin, synthetic fibres, industrial explosives, polythylene and dyestuffs. Output of many other industries, like bicycles, sewing machines, telephone and electrical goods, increased substantially. New skills were learnt by workers and a large and growing class of industrial managers came into being. Organised indusrial production practically doubled in these ten years; index of industrial production rose from 100 in 1950-51 to 194 in 1960-61. New industrial townships and factories sprang up in environs of main cities.

PROGRESS DURING THIRD PLAN AND ANNUAL PLANS

Industrial progress was markedly uneven during eight years which comprised Third Plan and subsequent Annual Plans. In first four years, conditions were relatively favourable for industrial investment and growth and the progress achieved was significant. Thereafter, for nearly three years economy was subjected to considerable stress and strain and growth rate in industrial production declined, first slowly and then steeply, till it reached virtual stagnation. But in the last year of this period, 1968-69, there were distinct signs of recovery.

Decline after 1964-65 was attributable to several factors, of which the most important were series of dislocations caused by hostilities in 1965 and two successive droughts in 1965-66 and 1966-67. Many industries were severely affected by shortage of raw materials and components arising from pause in external aid in 1965.

Among industries in which Third Plan production targets were fully or nearly realised by 1965-66 were aluminium, automobiles, electric transformers, cotton textile machinery, machine tools, sugar, jute, textiles, power-driven pumps, diesel engines and petroleum products. On the other hand, in some important industries like steel and fertilisers, there was a considerable shortfall in production. In subsequent years, there was a step-up in production in certain industries, such as, fertilisers, heavy chemicals, cement and petroleum products. In spite of this uneven performance, significant achievements contributing towards realisation of diversified industrial structure were made during this period. Substantial capacity was created in many new lines. Several large projects launched at the commencement of Third Plan were completed and brought into production. In particular, in heavy engineering and different units in Heavy Engineering Corporation, Mining and Allied Machinery Corporation and of heavy electrical projects made it possible, largely through indigenous efforts, expansion of further capacity in vital sectors like iron and steel, mining and power generation. In rail and road transport and communications, virtual self-sufficiency for supply of equipment and rolling stock was achieved. Machinery manufacturing capacity for a variety of traditional industries like textiles, sugar and cement was developed and designed and engineering capabilities were expanded. Process technology was either aquired or developed to enable planning, designing and construction of industrial projects with maximum indigenous efforts in fields like fertilisers, rayons and dissolving pulp. There was an appreciable increase in production capacity of steel and non-ferrous metals. Progress was made in expansion of capacity in petroleum, fertiliser and petro-chemical industries.

PROGRESS DURING FOURTH PLAN

In Fourth Plan, performance of industrial sector fell short of expectations both in terms of production and investment. Investment of industrial development in public sector was estimated to be about Rs 2,700 crore as against provision of Rs 3,050 crore. While pace of investment in some sectors like iron ore, petroleum and petro-chemicals was generally satisfactory, this was not so in respect of other sectors like iron and steel, non-ferrous metals, fertilisers and coal. In fact, shortfall in overall investment was much larger, if account was taken of escalation in project costs.

A number of factors were responsible for unsatisfactory growth in industrial production. While in some critical industries like steel and fertilisers, production remained substantially below installed capacity on account of operational problems in different units, other agro-based industries like sugar and textile showed an erratic trend. Inadequate pace of investment resulted in a reduced demand for industrial machinery, adversely affecting level of output of capital goods industries. Production in other engineering industries was also hit by shortage of steel and non-ferrous metals.

On positive side, there was a substantial production increase in several industries like alloys and special steels, aluminium, automobile tyres, petroleum refinery products, electronics. machine tools, tractors and heavy electrical equipment. Production in public sector undertakings also showed an encouraging rise towards the closing years of Fourth Plan. Apart from this, industrial base was further expanded and a greater degree of sophistication and self-reliance achieved.

PROGRESS DURING FIFTH PLAN

Fifth Plan laid emphasis on rapid growth of core sector industries and increase in production of export-oriented goods and articles of mass consumption. Average rate of growth of industrial sector was estimated at seven per cent per annum in the revised Plan. Sharp increase in prices of foodgrains, fertilisers and oil seriously upset the assumptions on which Fifth Plan had been framed. These new developments also lent urgency to a time-bound programme of action in order to achieve a measure of self-reliance in food and energy. Successive Annual Plans had to be formulated on these considerations.

Fifth Plan envisaged a total outlay of Rs 53,411 crore, comprising Rs 37,250 crore for public sector and Rs 16,161 crore for private sector, respectively. However, due to emergence of an unprecedented inflationary situation as a result of a steep increase in oil prices in November 1973, the Plan had to be drastically modified in 1976. The revised Plan envisaged a total outlay of Rs 69,351 crore comprising Rs 42,303 crore for public sector and Rs 27,408 crore for private sector respectively. Public sector outlay included Rs 3,000 crore as investment on inventories; remaining public sector outlay of Rs 39,303 crore as current outlay.

Of the revised public sector outlay of Rs 39,303 crore during Fifth Plan, share of industries and minerals sector amounted to Rs 10,201 crore of the total outlay. Outlay for large and medium industries was Rs 9,691 crore and that of village and small industries Rs 510 crore.

PROGRESS DURING SIXTH PLAN

Sixth Plan envisaged a total public sector plan outlay of Rs 97,500 crore.

Overall outlay earmarked for large industries and minerals sector was Rs 20,407 crore including coal and petroleum. A major part of the outlay amounting to Rs 19,018 crore was in Central sector and Rs 1,389 crore for state sector. Besides this, private sector investment during 1980-85 was estimated at Rs 30,323 crore. Outlay for village and small industries was Rs 1,780 crore.

Industrial policy during Sixth Plan aimed at optimum utilisation of existing capacities, quantitative increase in output of consumer, intermediate, capital goods and improvement of productivity. It aimed at an annual growth rate of eight per cent of industrial production during the five year period. As per the Index of Industrial Production, average growth rate achieved during Sixth Plan was 5.5 per cent per annum compound. Growth during the years was rather uneven–four per cent in 1980-81, 8.6 per cent in 1981-82, 3.9 per cent in 1982-83,5.3 per cent in the 1983-84 and 5.8 per cent in 1984-85. It may however be mentioned that the above growth rates, as indicated by the Index of Industrial Production are generally of a lower order as compared to actual growth in overall manufacturing sector. The Index (base 1970=100) has serious limitations in terms of inadequate coverage of newly emerging growth areas like electronics, petro-chemicals, etc., which were virtually non-existent in 1970. The Index also does not reflect high levels of growth in small scale sector. A revised Index of Industrial Production (base 1980-81=100) has recently been readied. A review of performance of industries in Sixth Plan reveals that targets of capacity creation have been achieved for industries like aluminium, zinc, lead, thermoplastics, petro-chemical intermediates, electrical equipment, automobiles and consumer durables. Production targets were achieved in industries like petroleum, machine tools, passenger cars, motor cycles and scooters, TV receivers, etc. However, shortfall in production was reported for coal, steel, non-ferrous metals, cement, drugs and pharmaceuticals, textiles, jute manufacture, commercial vehicles, railway wagons, sugar, etc.

Some major technology achievements of Sixth Plan are: commissioning of 500 mw power generation unit, commencement of manufacture of 500 mw turbo generator and boiler, manufacture of fuel-efficient 800 cc passenger cars of contemporary technology of international level. In fertiliser sector, manufacture of 1,350 tonnes per day fertiliser plant had commenced. In steel sector fully indigenous 3,200 cubic metre blast furnace and seven metre tall coke oven battery and equipment are now manufactured in the country. Similarly large-sized heavy machinery for mining is now being manufactured, *e.g.*, long wall mining equipment, eight cubic metre hydraulic excavaters, etc.

In electronic industry, which has been identified as a 'sunrise industry' in Seventh Plan, higher production level than targetted had been achieved in Sixth Plan. Higher levels of technology have been achieved in fields like LSI/VLSI circuits, manufacture of eight and 16-bit micro computer chips, computers and micro processors, communication equipment broadcasting and TV transmission equipment, micro electronics, electronic materials and components, etc.

SEVENTH PLAN

Seventh Plan envisaged a total public sector outlay of Rs 1,80,000 crore of which Rs 54,821.26 crore was earmarked for energy sector, Rs 19,708,09 crore for large and medium industries and Rs 2,752.74 crore for village and small scale industries. Major portions of these outlays were for schemes/projects in Central sector–57.4 per cent for energy sector and 82.6 per cent for industry and minerals sector including village and small scale industries.

In accordance with the guiding principle of Seventh Plan, *viz.*, to achieve growth with social justice and improved productivity, the programmes and policies in industrial sector oriented towards: (a) ensuring adequate supply of wage goods and consumer articles of mass consumption of acceptable quality and at reasonable prices; (b) maximising production for existing assets through restructuring of industry, improving productivity and technological upgradation; (c) development of 'sunrise' industries with high growth potential as well as of other industries with large domestic and export markets, so as to emerge as world leaders in them, and (d) evolving an integrated policy towards self-reliance in strategic fields and for creating employment opportunities for skilled and trained manpower.

Seventh Plan had envisaged a growth rate of 8.7 per cent for output industry sector. First four years of the Plan witnessed an average annual growth rate of around 8.5 per cent.

PUBLIC SECTOR

For planning and national accounting, public sector in India includes all activities funded out of Government's budget. In this sense, size of public sector is indeed very large. It includes not only Government departments but also government companies, whether in Central or state sector, irrigation and power projects, railways, posts and telegraphs, ordnance factories and other departmental undertakings and banking, insurance, financial and other services.

Process of industrialisation was launched as a deliberate policy in early fifties and in pursuance of this policy, large investments have been made in building up capacity in a wide spectrum of industries in public sector. Over the last four decades, growth of public sector enterprises has been phenomenal in terms of investment, production, profitability and range of activities. By 1987-88, capital employed in Central public sector alone stood at Rs 58,125 crore and total sales turn-over was Rs 81,367 crore. From only five enterprises in April 1951 with a total investment of Rs 29 crore, the number rose to 231 (including four enterprises under construction and six insurance companies) by March 1988 with an investment of Rs 71,299 crore. Public Sector today employs about 23 lakh people including casual workers.

About 55 per cent of total investment in Central public enterprises, is in steel, coal, minerals and metals, power and petroleum groups of enterprises. These public sector industries provide linkages to a host of other industries. Products and activities of these enterprises include: (a) making of steel, mining of coal and minerals, extraction and refining of crude oil, manufacture of heavy machinery, machine tools, instruments, heavy machine building equipment, heavy electronic equipment for thermal and hydel stations, transportation equipment, telecommunication equipment, ships, submarines, fertilisers, drugs and pharmaceuticals, petro-chemicals, cement, textiles and a few consumer items such as bread, newsprint, paper, footwear and contraceptives: (b) operation of air, sea, river and road transport: (c) operation in national and international trade: (d) consultancy, contract and construction services; (e) inland and overseas telecommunication services: (f) hotel and tourist services, etc.

As on 31 March 1988, there were 231 Central Public Enterprises (excluding two financial institutions and nine enterprises with Central government investment but without responsibility for management). Of these, 156 enterprises were producing and selling goods, 65 were rendering services which were under operation . In addition, there are six insurance companies and four enterprises under formation. Besides these, there were 10 more new enterprises.

Number of enterprises and investment in them since First Plan is shown in table 20.1.

TABLE 20.1 INVESTMENT IN PUBLIC SECTOR

	Total Investment (Rs in crore)	No of enterprises
At the commencement of the First Five Year Plan 1 April 1951	29	5
At the commencement of the 2nd Five Year Plan 1 April 1956	81	21
At the commencement of the 3rd Five Year Plan 1 April 1961	953	48
At the end of the 3rd Five Year Plan 31 March 1966	2,415	74
At the commencement of the 4th Five Year Plan 1 April 1969	3,902	85
At the commencement of the 5th Five Year Plan 1 April 1974	6,237	122
At the end of the 5th Five Year Plan 31 April 1979	15,602	176
At the commencement of the 6th Five Year Plan 1 April 1980	18,225	186
As on 31 March 1981	21,102	186
As on 31 March 1982	24,916	205
As on 31 March 1983	30,038	209
As on 31 March 1984	35,394	214
At the commencement of the 7th Five Year Plan 1 April 1985	42,791	221
As on 31 March 1986	50,362	225
As on 31 March 1987	61,643	226
As on 31 March 1988	71,299	231

Table 20.2 shows investment in various cognate groups as at the end of 1986-87 and 1987-88 indicating their respective shares in total investment.

TABLE 20.2 INVESTMENT IN COGNATE GROUPS

(Rs crore)

Cognate Groups	Investment as at the end of		Share in total investment (percentage)	
	1987-88	1986-87	1987-88	1986-87
1. Enterprises under Construction	4,036 80	4,027 63	5 66	6 53
2. Enterprises producing Goods				
(i) Steel	7,099 00	6,912 59	9 96	11.20
(ii) Minerals and Metals	7,009 92	6,747 21	9 83	10 95
(iii) Coal	7,253 35	6,304 84	10 17	10 23
(iv) Power	10,430 55	7,409 23	14.63	12 02
(v) Petroleum	6,637 51	5,105 23	9 31	8.28
(vi) Chemicals, Fertilisers and Pharmaceuticals	6,497.82	5,824 67	9 11	9 45
(vii) Heavy Engineering	1,617 64	1,623 87	2 27	2.63
(viii) Medium and Light Engineering	1,576 11	1,481 39	2 21	2.40
(ix) Transportation Equipment	2,318 10	2,067 76	3 25	3 35
(x) Consumer Goods	1,640 97	1,458 68	2 30	2.37
(xi) Agro-based	48 93	51 93	0 07	0 08
(xii) Textiles	1,713 27	1 476 30	2 41	2 40
Total (2)	53,843 17	46,463 70	75 52	75 37
Enterprises rendering Services				
(i) Trading and Marketing Services	2,421 88	2,372 05	3.40	3 85
(ii) Transportation Services	3,041 60	3,087 15	4 27	5.01
(iii) Contract and Construction Services	501.95	474 47	0 70	0 77
(iv) Industrial Development and Technical Consultancy Services	212 33	165 30	0 30	0 27
(v) Development of Small Industries	86 43	73 02	0 12	0 12
(vi) Tourist Services	120 93	115 41	0 17	0 19
(vi) Financial Services	4,776.81	2,913.55	6.70	4 73
(viii) Telecommunication Services	1,819.37	1,521 81	2 55	2 47
(ix) Companies registered under Section 25	264 51	255 52	0 37	0 41
Total (3)	13,245.81	10,978.28	18.58	17 82
4. Insurance Companies	173.40	173.40	0 24	0.28
GRAND TOTAL (1+2+3+4)	71,299.18	61,643.01	100.00	100.00

Total turnover of 221 operating enterprises amounted to Rs 81,367 crore during 1987-88 as against Rs 69,088 crore in the previous year, registering an increase of 17.8 per cent. Pattern of turnover in different cognate groups during 1986-87 and 1987-88 is given in table 20.3.

TABLE 20.3 TURNOVER IN COGNATE GROUPS

	Cognate groups	Gross Turnover (Rs crore)	
		1987-88	1986-87
(a)	**Enterprises producing Goods**		
1.	Steel	5,795.76	4,893.05
2	Minerals and Metals	1,593.57	1,303.40
3.	Coal	4,272.81	3,550.50
4.	Power	1,026.80	706.26
5	Petroleum	32,290.53	26,765.37
6.	Chemicals, Fertilisers and Pharmaceuticals	4,172.69	3,648.73
7.	Heavy Engineering	3,136.98	2,793.19
8.	Medium and Light Engineering	2,610.43	2,158.41
9	Transportation Equipment	2,543.98	2,295.20
10.	Consumer Goods	909.67	732.72
11.	Agro-based products	63.19	52.01
12.	Textiles	878.26	802.66
	Total	59,294.67	49,701.50
(b)	**Enterprises rendering Services**		
1	Trading and Marketing	16,287.09	14,299.16
2	Transportation Services	3,016.40	2,847.06
3.	Contracts and Construction	676.43	654.46
4	Industrial Dev and Tech Construction	351.14	346.53
5	Development of Small Industries	35.77	37.69
6	Tourist Services	128.58	110.15
7	Financial Services	412.13	258.77
8	Telecommunication Services	1063.10	718.48
9	Section 25 Companies	101.34	114.60
	Total	22,071.98	19,386.90
	GRAND TOTAL (a) + (b)	81,366.65	69,088.40

PERFORMANCE OF PUBLIC SECTOR

Table 20.4 presents a comparative analysis of collective performance of manufacturing and service group of enterprises separately for 1987-88 measured in terms of broad financial parameters.

From performance appraisal of operating enterprises given in table 20.4, it may be noted that overall net profit of public enterprises had during 1987-88 not only shown a substantial increase of Rs 411.96 crore or 23.26

per cent over overall net profit earned during 1986-87, but also touched an all time high figure of Rs 2,183.35 crore. Pre-tax profits earned by profit making enterprises had shown marked improvement from Rs 4,805.19 crore in 1986-87 to Rs 5,239.75 crore in 1987-88 *viz.*, by Rs 434.56 crore or 9.04 per cent. On the other hand, total loss incurred by loss-prone enterprises increased marginally *i.e.*, from Rs 1,704.52 crore in 1986-87 to Rs 1,718.61 crore in 1987-88 *i.e.*, by Rs 14.09 crore or 0 83 per cent A more distinguishing feature of this improved performance is that the upswing had come about notwithstanding'increase in interest and depreciation charges during 1987-88, to the extent of Rs 793.57 crore.

In the context of the balance of payment position of the country public sector is called upon to play a major role in easing the position. Value of foreign exchange earned by Central public sector undertakings during 1987-88 was Rs 4,252 crore. Of this, foreign exchange earned by public enterprises rendering services like operation of air transport, shipping, telecommunications, etc., amounted to Rs 1,420 crore. Some products exported were minerals, industrial boilers, petroleum products, electronic instruments, machine tools, handicrafts, pig iron, rail coaches, steel and power station equipment, etc.

Gross internal resources generated by public enterprises during Sixth Plan period from 1980-81 to 1984-85 was Rs 13,768 crore as compared to Rs 18,104 crore during first three years of Seventh Plan Contribution to public exchequer in the form of dividends, corporate tax, excise duty, customs duty, etc., during 1987-88 amounted to Rs 15,131 crore.

Central public enterprises employed 23 02 lakh persons (including casual employees) as on 31 March 1988 Average per capita annual emoluments was Rs 32,283 in 1987-88 as against Rs 28,823 in 1986-87

These enterprises are paying increased attention to research and development activities specially with a view to improving their technological back-up. Expenditure on R and D went up to Rs 208.66 crore in 1987-88 against Rs 178.25 crore in 1986-87 thereby registering an increase of Rs 30 42 crore or 17.07 per cent

INDUSTRIAL PRODUCTION

Production of some selected industries since 1950-51 covering the latest period up to 1988-89 is given in table 20.5.

Index of Industrial Production (base 1980-81 = 100) for periods from 1981-82 to 1988-89 is given in table 20.6.

According to Index of Industrial Production, industrial sector recorded a growth of 8.8 per cent during 1988-89 as against a revised growth of 7.3 per cent in 1987-88. Mining and quarrying sector showed an increase of 7.8 per cent during 1988-89, manufacturing sector 8.9 per cent and electricity generation 9.4 per cent.

Detailed industry-groupwise figures showed that in manufacturing

TABLE 20.4 COLLECTIVE PERFORMANCE OF MANUFACTURING AND SERVICE ENTERPRISES

(Rs crore)

	Details	Manufacturing/Production Enterprises		Service Enterprises		All Enterprises	
		1987-88	1986-87	1987-88	1986-1987	1987-88	1986-87
1	2	3	4	5	6	7	8
1.	Number of Enterprises	156	154	65	60	221	214
2.	Investment	53,843 17	46,463 70	13,245 81	10,978.28	67,088.98	57,441.98
3.	Capital Employed	40,976 84	35,897 70	17,148.00	15,936 92	58,124.84	51,834.62
4.	Turnover/Sales (Gross)	59,294 67	49,701 50	22,071 98	19,386 90	81,366.65	69,088.40
5.	Percentage of Gross Sales to Capital Employed	144 70	138.45	128 71	121.65	139.99	133.29
6.	Value of Goods Produced/Services rendered	53,583 44	45,619.79	20,221 43	19,410 27	73,804 87	65,030.06
7.	Cost of Production/Services	52,054.79	44,034 42	20,004 16	19,328.10	72,058.95	63,362 52
8.	Gain/Loss from operation (6-7)	1,528 65	1,585 37	217.27	82 17	1,745 92	1,503.20
9.	Add other income	1,242.73	1,089 21	532.49	343.92	1,775.22	1,433.13
10.	Profit or loss before tax (8+9)	2,771 38	2,674.58	749 76	426 09	3,521.14	3,100.67
	(a) Profit making enterprises	4,258.06	4,076 79	981.69	728.40	5,239.75	4,805.19
	(No. of enterprises)	(73)	(70)	(43)	(39)	(116)	(109)
	(b) Loss incurring enterprises	1,486 68	1,402 21	231 93	302.31	1,718.61	1,704.52
	(No. of enterprises)	(81)	(80)	(20)	(19)	(101)	(99)
	(c) No. of enterprises neither making profit nor loss	(2)	(4)	(2)	(2)	(4)	(6)
11.	Interest Charged	2,297.83	2,008.01	1,293.53	1,412 45	3,591.36	3,420.46
12.	Provision for tax	1,006 14	1,116 68	331 05	212.60	1,337.79	1,329.28
13.	Gross Profit (10+11)	5,069.21	4,682 59	2,043.29	1,838.54	7,112.50	6,521.13
14.	Percentage of Gross Profit to Capital employed	12 37	13.04	11 92	11 54	12.24	12.58

TABLE 20.5 PROGRESS OF INDUSTRIAL PRODUCTION (SELECTED INDUSTRIES)

Industry (Units)	1950-51	1960-61	1970-71	1980-81	1985-86	1986-87	1987-88	1988-89 (P)
I. MINING								
1. Coal (inc. lignite) (lakh tonne)	328	557	763	1,180	1,615	1,744	1,899.0	2,060.0
2. Iron Ore (lakh tonne)[1]	30	130	325	422	477	527	510.0	489.0
II METALLURGICAL INDUSTRIES								
3. Pig Iron (lakh tonne)	16.9	43.1	69.9	95.5	100.4	104.4	108.7	116.6
4. Steel Ingots (lakh tonne)[2]	14.7	34.2	61.4	103.3	90.6	90.7	97.6	107.9
5. Saleable Steel (lakh tonne)[3]	10.4	23.9	44.8	62.8	77.7	82.2	85.9	92.1
6. Steel Castings (th. tonne)	—	34	62	71	93	104.8	311.1[13]	332.7[13]
7 Aluminium (virgin metal) (th. tonne)	4	18.3	168.8	199.0	251.1	257.3	277.7	357.3
8. Blister Copper (virgin metal) (th tonne)	7.1	8.5	9.3	25.3	33.6	38.8	33.9	44.8
III. MECHANICAL ENGINEERING INDUSTRIES								
9. Machine Tools (Rs crore)	0.3	7	43.0	196.2	291.4	433.8[13]	475.4[13]	590.9[13]
10. Railway Wagons (th. nos.)[4]	2.9	11.9	11.1	13.6	13.10	15.2	15.8	21.7
11. Automobiles (th. nos.)[5]	16.5	55.0	87.9	121.1	219.3	—	—	—
(i) Commercial Vehicles (th. nos.)[6]	8.6	28.6	41.2	71.7	103.0	106.0	119.9	118.8
(ii) Passenger Cars, Jeeps, and Land Rovers (th. nos.)[12]	7.9	26.6	46.7	49.4	116.3	129.8	171.5	197.0
12. Power Driven Pumps (th. nos)	35	109	259	431.0	512.2	459.4	515.8	593.8
13. Motor Cycles and Scooters (th. nos)	—	19.4	97.0	317.1	732.3	1,434.6	1,596.9	1,674.5
14. Diesel Engines (th. nos)	5.5	44.7	65.0	173.9	183.9	2,235.6[13]	2,091.0[13]	1,856.2[13]
15. Bicycles (th. nos)	99	1,071	2,042	4,189	5,553	6,118.6	6,706.5	6702.7
16. Sewing Machines (th. nos)	33	303	235	335	291	377.1	314.6	238.3
IV. ELECTRICAL ENGINEERING INDUSTRIES								
17. Power transformers (lakh KVA)	1.8	41.1	80.9	194.6	272.5	282.5	241.0	286.0
18. Electrical Motors (th. HP)	99	729	2,721	4,060	5,250	5,430	4,300.0	5,400.0
19. Electrical Fans (lakh nos.)	2	10.6	17.2	41.8	52.0	52.6[13]	61.0[13]	64.0[13]
20 Electrical Lamps (lakh nos.)	140	435	1,193	1,981	2,707	2,836.8	2,555.0	2,475.0

TABLE 20.5 (Continued)

	Industry (Units)	1950-51	1960-61	1970-71	1980-81	1985-86	1986-87	1987-88	1988-89(P)
21.	Radio Receivers (th nos.)	54	252	1,704	1,734	1,161	1,249	977 9	1,035 0
22.	Electrical Cables and Wire, Aluminium Conductors (th. tonne)	1 7	23 6	64 2	86 0	61 1	58 0	41 0	29 5
V.	CHEMICALS AND ALLIED INDUSTRIES								
23.	Nitrogenous Fertilisers-N (th tonne)	9	98	830	2,164	4,328	5,410	5,466.0	6,712.0
24.	Phosphatic Fertiliser–P205 (th tonne)	9	52	229	842	1,417	1,660	1,665 0	2,252.0
25.	Sulphuric Acid (th. tonne)	101	368	1,053	—	—	—	—	—
26.	Soda Ash (th.tonne)	45	152	449	563	849	912	936 0	1,174 0
27.	Caustic Soda (th.tonne)	12	101	371	578	727	764	958 0	902 0
28.	Paper and Paper Board (th.tonne)	116	350	755	1,149	1,517	1,890 90	2,011 0	2,073 0
29.	Rubber Tyres								
	i) Auto Tyres (lakh nos.)	8 7	14 4	37 9	79 7	123 4	—	—	—
	ii) Bicyle Tyres (lakh nos.)	33	111 5	192 0	270 0	362 0	297 0	233.0	254 0
30.	Cement (lakh tonne)	27.3	79.7	143 0	187 0	330 0	366 0	396 0	439 0
31.	Refractories (th.tonne)	237	567	683	—	—	—	—	—
32.	Petroleum Refinery Products (lakh tonne)	2	58	171	241	399	425	444 0	453 8
VI.	TEXTILES INDUSTRIES								
33.	Jute Textiles (th. tonne)	837	1,097	1,060	1,392	1,350	1,393 1	1,194.9	1,384 0
34.	Cotton Yarn (crore kgs)[7]	53 4	80 1	101 6	129.8	147 3	152 6	155 5	156 3
35.	Cotton Cloth (crore mtrs)[8]	421 5	637 8	777 2	693 8	1,249 9	1,298 7	1,309.4	1,329 8
	i) Mill Sector (crore mtrs.)	340.1	463.9	416 2	416 4	337.7	331.6	302 7	280 8
	ii) Decentralised Sector (crore mtrs)	81 4	208 9	361 0	547 4	912 2	967 1	1,006.7	1,048 0
36.	Rayon Yarn (th. tonne)	2 1	43 8	100 0	126 0	—	—	—	—
37	Art Silk Fabrics (crore mtrs.)	28 7	54 4	94 7	—	—	—	—	—

TABLE 20.5 (Continued)

Industry (Units)	1950-51	1060-61	1970-71	1980-81	1985-86	1986-87	1987-88	1988-89(P)
38. Wollen Manufactures								
i) Woollen and Worsted Fabrics (lakh kgs)[9]	87	130	197	—	—	—	—	—
ii) Woollen and Worsted Fabrics (lakh mtrs.)[10]	61	133	143	—	—	—	—	—
VII. FOOD INDUSTRIES								
39. Sugar (Oct-Sept.) (lakh tonne)	11 3	30 3	37 4	51 48	69 9	85.0	91 0	87.1
40 Tea (crore kg.)	27.7	32 2	42 3	56 8	64 8	62 9	67 3	66.3
41. Coffee (th. tonne)	21 0	54 1	71 4	139 5	141 6	143 0	158 5	164 5
42. Vanaspati (th. tonne)	170 0	340	558	753	868	918 0	980 0	995 6
VIII. ELECTRICITY GENERATED (crore kwh)[11]	530	1,690	5,580	11,080	17,004	18,761 0	20,189 0	22,098.0

1. Excludes output in Goa up to 1969-70
2 In terms of steel up to 1970-71
3. In terms of finished steel up to 1970-71
4. Excludes output in railway workshops
5. Includes land rovers, jeeps, utilities, station wagons and vans
6. Includes buses, trucks, tempos and three and four wheelers
7. Includes mixed/blended and cent per cent non-cotton yarn from 1970-71
8. Includes blended/mixed cotton cloth from 1970-71 onwards
9. Includes viscose yarn, staple fibre and acetate yarn
10. Figures are for calender year from 1977
11. Relates to public utilities only.
12. Data includes cars and jeeps only
13. Data includes production of small scale sector
(P) Provisional

TABLE 20.6 INDIEX OF INDUSTRIAL PRODUCTION (1980–81=100)

INDUSTRY GROUP	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	Percentage change April-March 1988-89/ 1987-88
General Index	109.3	112.8	120.4	130.7	142.1	155.1	166.4	181.0	8.8
Mining	117.7	132.3	147.8	160.8	167.5	177.9	184.6	199.0	7.8
Electricity	110.2	116.5	125.4	140.4	152.4	168.1	181.0	198.0	9.4
Manufacturing	107.9	109.4	115.6	124.8	136.9	149.7	161.5	175.8	8.9
Food Products	113.5	129.5	121.1	120.0	125.6	133.2	139.0	149.0	7.2
Beverages	104.3	107.8	104.5	111.7	112.1	98.5	84.9	92.1	8.5
Cotton Textiles	99.7	89.4	100.2	102.2	110.4	112.5	111.3	107.5	-3.4
Jute, hemp and mesta textiles	95.7	92.9	78.2	99.4	97.2	101.1	91.1	101.4	11.3
Textile products (Incl. wearing apparel)	96.7	96.3	92.1	95.6	112.8	87.1	91.8	134.2	46.2
Wood and wood products	153.2	153.0	167.5	216.5	223.2	246.1	161.7	171.7	6.2
Paper and paper products	108.2	105.5	109.3	131.9	148.5	263.2	166.3	171.6	3.2
Leather and leather products	128.1	100.1	166.3	139.7	169.2	178.7	185.3	77.4	-4.3
Rubber, Plastic, Petroleum products	119.2	119.0	136.1	147.2	153.0	149.6	155.9	168.3	8.0
Chemical and chemical products	116.9	121.2	131.0	142.8	154.3	175.5	200.9	233.3	16.1
Non-metallic mineral products	106.7	103.7	122.5	138.4	157.3	160.3	158.1	184.6	16.8
Basic metal and alloy products	100.0	104.2	95.1	107.3	117.0	126.8	135.6	145.0	6.4
Metal products except machinery	94.6	89.9	88.1	105.0	114.7	124.5	129.6	133.5	3.0
Machinery and Machine tools except electrical machinery	111.1	112.0	119.6	127.6	130.0	141.8	139.5	159.7	14.5
Electrical machinery	103.9	115.9	143.1	148.8	200.6	254.7	335.2	351.0	4.7
Transport equipment	108.1	111.3	123.4	131.6	131.6	144.8	151.7	171.1	12.8
Other Manufacturing Industries	149.2	155.0	104.6	122.8	152.7	235.4	272.1	303.0	11.4

sector, except for cotton textiles and leather and fur products, other 15 groups had recorded positive rates of growth during 1988-89. Industry groups which showed a notable growth include textile products 46.3 per cent, chemicals and chemical products 16.4 per cent, non-metallic mineral products 16.8 per cent, non-electrical machinery 14.5 per cent, transport equipment 12.6 per cent, jute textile 11.3 per cent and miscellaneous manufacturing products 11.4 per cent.

PRINCIPAL INDUSTRIES

TEXTILES

Textile industry in India is the largest single industry, accounting for around 20 per cent of total industrial output (employing around 150 lakh people) and contributing for about 25 per cent of our total exports. The Textile Policy Statement of 6 June 1985 was one of the most significant steps to promote interests of this sector. Primary objective of the Policy was to enable industry as a whole comprising organised sector, powerloom sector and handloom sector to increase production of cloth of acceptable quality at reasonable prices to meet clothing requirements of a growing population, keeping in view employment and export potential of the industry.

PER CAPITA CONSUMPTION OF CLOTH

Per capita consumption of cloth has been steadily increasing after the announcement of the new Policy. From 15.35 metre in 1985 it increased to 16.50 metre in 1989. The most rapid growth has been in the case of 100 per cent non-cotton fabrics, followed by blended fabrics. Consumption of cotton fabrics has however, shown only a marginal increase.

PRODUCTION OF YARN

Production of yarn has been steadily increasing as is clear from table given below:

(Lakh kg)

Year	Cotton Yarn	Blended Yarn	100 per cent Non-cotton Yarn	Total
1984-85	11,830	1,290	700	13,820
1985-86	12,530	1,290	720	14,540
1986-87	13,020	1,440	800	15,260
1987-88	13,210	1,520	820	15,550
1988-89	13,020	1,700	910	15,630

PRODUCTION OF CLOTH

Production figures of cloth in last four years is given below:

(Lakh metre)

Sector	1985-86	1986-87	1987-88	1988-89	1988-90 (April-October)
Mill sector	33,760	33,170	30,270	28,080	15,470
Powerloom sector	58,860	62,220	64,570	70,080	42,440
Handloom sector	32,360	34,490	35,080	39,490	20,730
Sector Total	1,24,980	1,29,880	1,29,920	1,37,650	78,640
Total Production[1]	1,36,460	1,42,460	1,42,460	1,49,050[2]	1,56,080

[1] Includes khadi, silk, wool and hosiery fabrics

[2] Estimated.

Organised mill sector has made rapid growth during last three decades. Number of mills has nearly tripled up from 378 in 1951 to 1,054 in 1989. Out of these 777 are in private sector, 179 in public sector and 98 in cooperative sector. Number of composite units is 283 and spinning units 771.

TEXTILE PRICES

Wholesale price index indicates that prices of different varieties of cloth have been largely contained at reasonable levels. While the general index of wholesale prices registered an increase of around 24 per cent between May 1985 and February 1989, the index number of textile prices increased only by 18 per cent.

EMPLOYMENT GENERATION

An important parameter for evaluating performance of textile sector is the generation of employment in different sectors during last three years:

(Lakh)

Sector	1986	1987	1988
Mill sector	12 53	12 05	11,81
Handloom sector	72 76	82 86	84 22
Powerloom sector	31 90	47 05	50 95

Total employment in the textile sector has gone up by over 25 per cent during this period. Number of powerloom increased from around 8.36 lakh in 1985 to an estimated 11 lakh in 1988. Production of cloth in handloom sector had gone up from 31,370 lakh metre in 1984-85 to 39,490 lakh in 1988-89 This reflects labour intensity in textile production which is due to increased share of decentralised sectors in cloth manufacturing.

As a result of several measures taken by Government coupled with favourable demand and increasing exports, organised sector of textile industry has been doing reasonably well. Textile Modernisation Fund of Rs 750 crore for a five-year period beginning 1 August 1986 stands fully utilised in terms of sanctions. Great emphasis has been laid on monitoring of sick/closed units and their rehabilitation. By January 1990 Rs 9.21 crore had been disbursed under Textile Workers Rehabilitation Fund scheme to 5,975 workers of eight closed textile mills. States have also been asked to ensure prompt and effective measures for payment of outstanding dues to workers and for their rehabilitation.

Decentralised power loom sector also continues to grow providing cheap cloth to masses. Government has established two more powerloom service centres at Srinagar and Guwahati, five more such centres are to come up shortly.

With a view to establishing India as a regular exporter of cotton on a long term basis and thereby ensure better return to growers, government has decided to permit export of one lakh bales each of *Bengal Deshi* and ELS cotton every year in the beginning of season irrespective of crop size. However, in view of expected bumper crop government released export quota of one lakh bales of Bengal Deshi and three lakh bales of staple cotton.

HANDLOOM SECTOR

Handloom sector has been given very high importance both in national textile policy as also in Plan documents Industry provides employment to more than 100 lakh people in decentralised sector next only to agriculture: In accordance with the Textile Policy of June 1985 enlarging the cooperatives in order to provide organisational infrastructure, coverage was estimated at around 17.5 lakh effective looms by 1987-88. Keeping in view production target of 450 crore metre of cloth for handloom sector to be achieved in the terminal year of Seventh Plan, an achievement of 394.9 crore metre of cloth was made during 1988-89 against the target of 425 crore metres. In the field of export, handloom sector has registered a significant gain. Value of exports increased from a level of Rs 11.6 crore during 1967-68 to Rs 516.21 crore and Rs 630.79 crore during 1987-88 and 1988-89 respectively. During April-October 1989 value of handloom export was Rs. 448.51 crore.

JUTE

Jute industry now employs about 2.5 lakh workers and supports forty lakh jute growing farmers. Target of jute goods production to be achieved in the terminal year of Seventh Plan was fixed at 16.25 lakh mt of which 9.5 lakh mt were to be consumed domestically and the remaining to be exported. Actual production of jute goods during 1988-89 was 13.00 lakh mt as against 12.50 lakh mt in the previous year.

The industry has been facing problems due to a number of factors like declining demand for carpet backing cloth in export market, high cost of inputs, stiff competition in export market from other jute producing countries besides adverse competition from synthetic substitutes.

There are 69 jute mills of which six belong to National Jute Manufactures Corporation (NJMC), a public sector enterprise under Ministry of Textiles. NJMC accounts for 12 per cent of total production capacity in the industry. The Corporation has undertaken modernisation of five units for increased production and it is also engaged in the production of special types of yarn and fabrics required for decentralised handloom and handicraft sectors.

Various developmental and export promotion activities in jute sector are receiving financial, technological and marketing support from Jute Manufactures Development Council, a statutory body (JMDC) under

Ministry of Textiles. JMDC has in recent years pioneered activities relating to marketing of diversified jute products and in its efforts it is receiving support from leading R and D institutions like IJIRA, JTRL and JARI.

With increasing emphasis on production of diversified jute products and incentives for marketing of these products within the country and abroad, jute industry has poised for development of entirely new lines in the coming 90's. During 1988-89, 3.1 lakh mt of jute goods valued at Rs 249.97 crore were exported, the figures for 1987-88 were 2.40 lakh mt of goods worth Rs 242.8 crore. During 1989-90 jute goods worth Rs 280 crore were exported.

Government has fixed the minimum support price for TD-5 grade of jute in Assam at Rs 320 per quintal for 1990-91, this being an increase of Rs 25 over the price fixed for the last year. This is expected to enthuse farmers to continue to step up raw jute production.

SILK PRODUCTION AND EXPORTS

India has unique distinction of being the only country in the world producing all four varieties of natural silk *i.e.*, mulberry, tasar, *eri* and *muga*. Details of silk production from 1985-86 to 1987-88 are given below:-

(Metric tonne)

Year	Mulberry	Tasar	Eri	Muga	Total
1985-86	7,029	464	352	52	7,897
1986-87	7,905	548	392	55	8,900
1987-88	8,500	485	370	65	9,420

In the last five years or so, India has emerged as second largest producer of natural silk in the world, next to China. With a production of nearly 9,500 mt in 1988-89, India's share in global production is over 15 per cent. Exports of silk goods during 1987-88 and 1988-89 were very encouraging. While exports during 1987-88 were worth Rs 254.96 crore registering an increase of 26.5 per cent more than the previous year, exports during 1988-89 were of the order of Rs 330.54 crore which meant an increase of 29.6 per cent over exports of the previous year. During 1989-90 export earnings amounted to Rs 392.54 crore which represents 18.7 per cent increase over 1988-89.

Central Silk Board has launched a national seri-culture project with World Bank and Swiss assistance at a cost of Rs 555.30 crore over a period of five years. This project will be in collaboration with five traditional silk producing states of Karnataka, Andhra Pradesh, Tamil Nadu, West Bengal and Jammu and Kashmir. In addition it will also be implemented in 12 other non-traditional states of Kerala, Maharashtra, Madhya Pradesh, Haryana, Gujarat, Rajasthan, Orissa, Uttar Pradesh, Assam Punjab and Himachal Pradesh. Under this project an investment of Rs 2.19 crore will be made in Madhya Pradesh to achieve a production target of 60 tonnes of raw silk.

The Board has also formulated a comprehensive project for production of 137 tonnes of oak tasar silk over a period of five years in Uttar Pradesh, Himachal Pradesh, Jammu and Kashmir, Manipur, Nagaland, Assam, Arunachal Pradesh and Mizoram. Total cost of the project is Rs 45.50 crore. During the last three years total production of oak tasar silk was 3.50 tonnes valued at Rs 27 lakh.

SUGAR

Sugar industry ranks second amongst major agro-industries. There were 392 sugar factories in 1989 as against 138 during 1950-51. Of these 217 factories come under cooperative sector. Government had announced on 12 December 1986 a policy for licensing of additional capacity in sugar industries during Seventh Plan

Broad guidelines to be followed for granting licenses for establishment of new sugar factories and expansions in existing units are: (i) sectoral priorities followed during Sixth Plan period were followed during Seventh Plan period also. This means that first priority was accorded for establishment of a new sugar factory in cooperative sector followed by public sector. In areas where proposals from these sectors are not received, proposals from private sector could be considered, (ii) basic criterion for the establsihment of a new sugar factory would be abundant availability of sugarcane in a compact area around the proposed factory site. Potential for further cane development would be an additional factor; (iii) to ensure supply of adequate quantity of sugarcane to existing capacity as well as to meet requirement of future expansion, no license would be granted for establishment of a new sugar factory within a radius of 40 km of an exisiting unit; (iv) to take advantage of economies of scales as well as facilitate incorporation of modern technology, subject to availbility of sugarcane, new units would be licensed for an initial capacity of 2,500 TCD as against the earlier 1,250 TCD. Expansion in existing units would be allowed up to 3,500 TCD. Proposals for expansion of existing units up to a maximum of 5,000 TCD would be permitted, provided entire additional requirement of sugarcane accrues through increased productivity and not be expansion of area, and (v) establishment of new sugar units in backward areas may be given priority subject to adequate cane availability and techno-economic feasibility.

Subsequently, on receipt of representations from two apex bodies of the industry, namely, National Federation of Cooperative Sugar Factories Ltd., and Indian Sugar Mills Associations and others concerned, Government made a limited review of the licensing policy and relaxed the same from May 1989. Under it in areas certified as industrially backward and agro-climatically suitable for cultivation of sugarcane, licensing of new sugar factories in cooperative and public sectors would be allowed for an initial capacity of 1,750 TCD subject to condition that these units would expand their capacity to 2,500 TCD within five years of going into production.

Spatial distance of 40 km has also been reduced to 25 km subject to conditions: (i) average per hectare yield of sugar should be higher by at least 20 per cent over the national average, and (ii) at least 40 per cent of area should be under imporved and high sucrose varieties of sugarcane like COJ-64, COC-671, etc.

Cess is being imposed on sugar produced in the country since 1 June 1982 under the Sugar Cess Act, 1982 for collection of funds to finance development of sugar industry The Sugar Development Fund Act, 1982 was enforced from 1 June 1982 to finance these activities (a) making loans for facilitating rehabilitation/modernisation of any sugar factory for undertaking of any scheme for development of sugarcane in the factory areas, (b) making grants for purpose of any research project aimed at development of sugar industry, and (c) defraying any other expenditure for the purpose of the Act.

The Act was amended in November 1982 so as to enable Government to apply the Fund also for defraying expenditure for building up and maintenance of buffer stocks of sugar with a view to stabilising prices of sugar The Fund consists of amounts of cess on sugar collected as part of excise duty. Loans on soft terms for sugargcane development and modernisation and rehabilitation of sugar factories are now available from Sugar Development Fund.

Production of sugar during 1987-88 was 91 03 lakh tonnes Capacity and production targets for 1989-90 were envisaged at 107 lakh tonnes and 93 lakh tonnes respectively. Output of sugarcane is projected to increase from 1,800 lakh tonnes in 1984-85 to 2,090 lakh tonnes in 1989-90. Consumption of sugar had gone up from 50 lakh tonnes in 1980-81 to 76 lakh tonnes in 1983-84. It increased to 93 33 lakh tonnes in 1987-88 and to 98.66 lakh tonnes (provisional) in 1988-89. Sugar production during current season 1989-90 (October-September) is estimated at 101 lakh tonnes, while consumption is expected to be about 102 lakh tonnes. As on 31 March 1990 production of sugar was 81 69 lakh tonnes It is expected that this may even reach 106 lakh tonnes, thus setting a new record for the country this year.

CEMENT

Manufacture of cement was first started in Madras in 1904. At present, there are about 90 cement plants in large sector and 184 cement plants in mini sector with a total capacity of about 600 lakh tonnes per annum as on 1 April 1989. Total production of cement (all varieties) in 1988-89 was 442.7 lakh tonnes as against 302 lakh tonnes in the last year of Sixth Five Year Plan (1984-85). Cement production was only about 2.7 lakh tonnes in 1950-51. Proposed target for1990-91 is 490 lakh tonnes including 25 lakh tonnes from mini sector.

Policy of partial decontrol introduced from 28 February 1982 coupled with further promotional measures taken by Government with regard to cement industry in late seventies, acted as a catalyst in growth of cement industry. Installed capacity rose from 397 lakh tonnes at the end of Sixth Plan to 601 lakh tonnes as on 1 April 1989 (including mini cement sector). Cement production increased from 302 lakh tonnes in 1984-85 to 443 lakh tonnes in 1988-89. Target of cement production for 1989-90 was fixed at 490 lakh tonnes, while actual production was 456 lakh tonnes.

In view of improvement in indigeneous availability of cement, no import was permitted during last three years. Government has further liberalised its policy towads industry and lifted all price and distribution control from 1 March 1989. It is expected that with the removal of price and distribution controls, industry will grow at a faster rate to meet the growing demand for cement during Eighth and Ninth Plan period.

Rebate available in excise duty to new cement units remained in operation in 1988-89 and 1989-90 and was valid till 31 March 1990. To encourage setting up of cement units in small scale sector, Government has announced relief in excise duty at the rate of Rs 100 per tonne. It is available to all units with vertical shaft kiln with capacity of 200 TPD and rotary kilns with capacity of 300 TPD.

To give boost to export of cement, Government has also announced cash compensatory support at the rate of 10 per cent of net FOB realisation both for ordinary varieties of cement and white cement. Export which was previously canalised through STC has now been decanalised. Export of clinker also has been removed from the banned list. Permission for export of clinker can now be given on merit. The industry has already started exports to Bangladesh.

PAPER INDUSTRY

Paper industry is a vital and core industry for any country and per capita paper consumption can be taken as a measure of growth and progress in areas related to industrial, cultural and educational activities. Per capita consumption is tending to be stagnant in India at approximately 2 kg as against more than 200 kg in highly developed countries.

Setting up of first mechanised paper mills dates back to 1832 when a paper machine was installed at Serampur in West Bengal. In the beginning of First Five Year Plan in 1950, 1,60,000 tonnes of paper was manufactured, about 90,000 tonnes imported. Production expanded rapidly from Second Plan onwards and by early 1980 imports were down to 60,000 tonnes and production was almost ten fold. At present, there are 30 large integrated pulp and paper mills with a total capacity of 14.6 lakh tonnes besides 275 small paper mills with total capacity of 15.6 lakh tonnes. Quite a few units are lying closed because of various reasons including management problems, obsolescence of machines and non-availability of raw materials in the area of location. Out of 275 small paper mills, 165 are based on waste paper recycling and their capacity ranges from 500 to 5,000 tonnes per annum. There are about 85 mills which manufacture paper based on waste paper and agro-residues with capacities ranging from 5,000 to 10,000 tonnes per annum. About 25 mills have a capacity ranging from 10,000 to 20,000 tonnes per annum and these units are primarly based on agricultural residues. Primary reasons for growth of small paper mills can be attributed to : (i) allowing import of secondhand paper machines during 70's and early 80's; (ii) dwindling availability of conventional forest based fibrous raw materials *viz.*, bamboo and hardwood which are basic raw materials for large mills, and (iii) liberal incentives by way of excise duty reliefs and exemption from applicability of the Paper (Regulation and Production) Order, 1978 and the Paper (Control) Order 1979, which required large mills to supply white printing paper at unremunerative prices, allowed by Government for small/ mini paper mills which utilise unconventional raw materials *viz.*, straw, grass, waste paper, bagasse, etc., for paper making. Capacity utilisation started declining sharply after 1971 and more prominently between 1979 and 1988. While the compounded growth of installed capacity from 1980 to 1988 has been 8.1 per cent, production increased by only 5.4 per cent during the same period. If capacity of the closed units is not taken into account, capacity utilisation would be around 75 per cent.

Development Council for Pulp Paper and Allied Industries has estimated the demand of paper by the year 2000 to be about 32 lakh tonnes. Additional capacity of around 19 lakh tonnes can be created by: (i) revival of closed and sick units; (ii) modernisation of existing mills, and (iii) building up of new units.

NEWSPRINT

Until 1981, National Newsprint and Paper Mills was the only unit in the country manufacturing newsprint. The mill, which is in Central public sector commenced production in 1955. From 1981 to 1987, three more newsprint mills were set up, one in Central public sector and two in state sector. In addition, one paper mill in private sector was recently permitted to manufacture newsprint. Thus, as on 1 January 1989, there were five mills in the country producing newsprint, with an installed capacity of 3 lakh tonnes. Production of newsprint during 1988-89 was of the order of 2.76 lakh tonnes. Demand for newsprint is met by indigenous production, supplemented by imports.

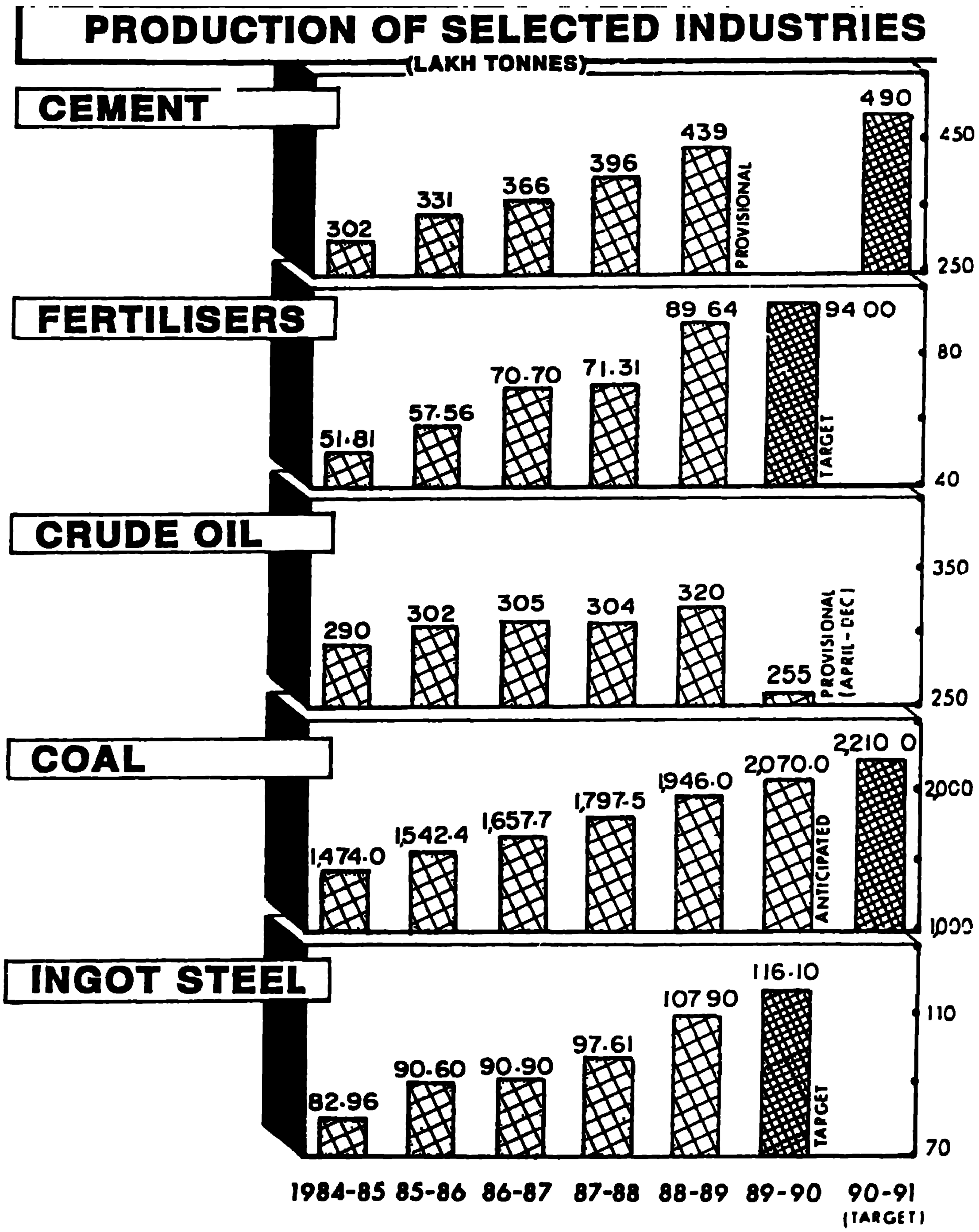
CINE AND X-RAY PAPER

Hindustan Photo Films Manufacfuring Company Ltd. was set up at Udhagamandalam in 1960 by Government for manufacturing cine and X-ray roll, graphic arts and industrial X-ray films and photo paper. The Company has a total installed capacity (for integrated production and jumbo coversion) of over 153 lakh sq mt.

STEEL

The beginning of iron and steel industry in India was in 1870 when Bengal Iron Works Company (a forerunner of IISCO) set up its plant at Kulti in West Bengal. But the first efforts at large scale production got under way when Tata Iron and Steel Co., (TISCO) was set up at Jamshedpur in 1907. This was followed by establishment of Indian Iron and Steel Co. (IISCO) at Burnpur in 1919. The first unit in the public sector now known as Visvesvarayya Iron and Steel Works Ltd., started functioning at Bhadravati in 1923. After independence, development of steel industry was considered during First Plan but it was only in Second Plan that work started to set up three integrated steel projects each with 10 lakh ingot tonnes capacity at Bhilai, Durgapur and Rourkela. An expansion programme to double the capacity of the two private sector steel plants, namely, TISCO and IISCO to 20 lakh tonnes and 10 lakh tonnes respectively was also taken in hand. Three plants in public sector came into operation in stages between 1956 and 1962 and expansion of private sector factories was completed in 1959. In Third Plan, emphasis was on expansion of the three public sector steel plants and setting up of new steel works at Bokaro. Fourth Plan steel programme was based on maximum utilisation of existing steel capacity and preparation of plans to set up three more steel plants at Salem in Tamil Nadu, Vijayanagar in Karnataka and Vishakhapatnam in Andhra Pradesh to create additional steel production capacity to meet the requirement in Fifth Plan. However, it was only by the close of Fifth Plan which terminated a year ahead of the schedule on 31 March 1978 that there was addition to steel making capacity of the order of 17 lakh tonnes with completion of Stage I of Bokaro Steel Plant Total installed ingot steel capacity which stood at 89 lakh tonnes as on 31 March 1974 had increased to 106 lakh tonnes by 31 March 1978.

Management of IISCO was taken over by Government on 14 July 1972 and ownership of the company acquired on 17 July 1976 with a view to improving its working. Bokaro Steel Plant and Bhilai Steel Plant are presently being expanded to four lakh tonnes of crude steel capacity each. In Bokaro Steel Plant, most of expansion units in iron and steel making areas have been commissioned. In Bhilai Steel Plant, expansion has been planned in two phases. All units in Phase I have been commissioned. Alloy Steel Plant at Durgapur has a capacity to produce 1,60,000 tonnes of ingot steel of alloy and special steels. Its capacity is currently being expanded to 2,60,000 tonnes of crude steel bv adopting sophisticated VAD. VOD processes and continuous casting. Salem Steel Plant at Salem has capacity to produce 32,000 tonnes of stainless steel sheets/coils. It started commercial production in March 1982. The plant is capable of producing sophisticated grades of stainless steel sheets/coils used in industrial sector and kitchenware. Capacity of steel plants after completion of the expansion schemes under implementation at Bhilai, Bokaro and ASP has been shown in table 20.7.


PRODUCTION OF SELECTED INDUSTRIES
(LAKH TONNES)
CEMENT
302
331
366
396
439
PROVISIONAL
490
450
250
FERTILISERS
51·81
57·56
70·70
71.31
89 64
94 00
TARGET
80
40
CRUDE OIL
290
302
305
304
320
255
PROVISIONAL (APRIL-DEC)
350
250
COAL
1,474·0
1,542·4
1,657·7
1,797·5
1,946·0
2,070·0
ANTICIPATED
2,210 0
2,000
1,000
INGOT STEEL
82·96
90·60
90·90
97.61
107 90
116·10
TARGET
110
70
1984-85
85-86
86-87
87-88
88-89
89-90
90-91
(TARGET)

STEEL AUTHORITY OF INDIA LIMITED

Steel Authority of India Limited (SAIL) is a wholly-owned Government undertaking. It is responsible for management of integrated steel plants at Bhilai, Durgapur, Rourkela, Bokaro and Burnpur and also Alloy Steel Plants at Durgapur and Salem Steel Plant at Salem. SAIL took over Maharashtra Electrosmelt Limited, a mini steel plant producing ferro-manganese and steel in January 1986. Burnpur Steel Works are under Indian Iron and Steel Company, a wholly-owned subsidiary of SAIL. Visvesvarayya Iron and Steel Limited, a sick unit was taken over by SAIL on 1 August 1989. Revival of this unit is now being pursued vigorously.

Authorised capital of SAIL was Rs 5,000 crore and paid-up capital as on 31 March 1989 was Rs 3,972 crore. Gross turnover during 1988-89 was Rs 6,624.98 crore excluding IISCO. Production of crude steel, saleable steel and pig iron for sale from steel plants under SAIL and TISCO during 1984-85 to 1988-89 is shown in table 20.8. During 1989-90 production of saleable steel in five integrated steel plants SAIL by January was 56.7 lakh tonnes.

TABLE 20.7 CAPACITY OF STEEL PLANTS

('000 tonne)

PLANT	RATED CAPACITY Crude Steel	RATED CAPACITY Saleable Steel
SAIL		
Bhilai	4,000	3,153
Durgapur	1,600	1,239
Rourkela	1,800	1,225
Bokaro	4,000	3,156
IISCO	1,000	800
TOTAL (INTEGRATED STEEL PLANTS)	12,400	9,573
Alloy Steel Plant	260	178
Salem Steel Plant	—	32

MINI STEEL PLANTS

Electric arc furnace units, popularly known as mini steel plants produce steel based on steel scrap/sponge iron. These units constitute an important segment of steel industry in the country. While integrated steel plants mainly produce mild steel in bulk quantities, mini steel plants produce mild as well as alloy steels which could not be economically produced by integrated steel plants.

At present there are 214 mini steel plants with a total licensed capacity of over 83 lakh tonnes per annum, of which 167 units have been commissioned and have started commercial production. Other units are at various stages of implementation. Besides these units, there are some electric arc furnace units licensed for manufacture of castings which have been allowed to diversify their production into steel ingots. Production of mini steel plants in 1988-89 was 31.74 lakh tonnes (estimated).

VISHAKHAPATNAM STEEL PROJECT

Vishakhapatnam Steel Project (VSP) is the first integrated steel project being set up in southern region near Vishakhapatnam port in Andhra Pradesh. Many modern technological features have been incorporated in the design of VSP, *e.g.*, seven metre tall coke oven batteries with dry quenching facilities, bigger blast furnace of 3,200 cubic metres, cent per cent continuous casting facilities, etc.

Annual capacity of the Project is 30 lakh tonnes. The Project is being implemented in two stages of 15 lakh tonnes each. Revised cost estimate of VSP was Rs 6,849.70 crore as per fourth quarter 1987 prices. However updated cost based on fourth quarter 1988 prices had been estimated as Rs 7,333 crore.

A major milestone was achieved in VSP in September 1989 when its coke oven battery No. I was completed and commissioned. Sinter plant was subsequently commissioned in November 1989. The largest and most modern blast furnace, first of its kind ever set up in the country, has been blown at the Plant. The 3,200 cu.m furnace is expected to produce 4,860 tonnes of molten iron per day. This would be followed by completion. of other Stage-I units. Meanwhile construction of Stage-II units is also in progress.

SPONGE IRON

Sponge iron is mainly used as a substitute raw material for steel scrap in mini steel plants. In view of importance of utilising large non-coking coal reserve for steel making and for conserving coking coal resources, a special project was taken up at Kothagudam in Andhra Pradesh with UNDP assistance for production of sponge iron. The plant has established production of sponge iron with indigenous iron ore and non-coke coal. Capacity of the plant has been expanded from 30,000 to 60,000 tonnes per annum.

Total production capacity of sponge iron units in the country as on 31 March 1990 was 14 lakh tonnes. It is proposed to be increased to 50 lakh tonnes by the end of Eighth Plan.

SALEM STEEL PLANT

Salem Steel Plant has capacity to produce 32,000 tonnes of stainless steel sheets/coils. It started commercial production in March 1982. The Plant is capable of producing sophisticated grade of stainless steel sheets/coils for use in industrial sector. Present capacity of the Plant is being doubled at a cost of Rs 69.37 crore. It is to be completed by August 1991.

METALLURGICAL AND ENGINEERING CONSULTANTS

Metallurgical and Engineering Censultants (India) Limited (MECON) is an autonomous company directly under Ministry of Steel and Mines. Established in 1959 as Central Engineering and Design Bureau, a unit of the then Hindustan Steel Limited (HSL), MECON has now grown into one of the world's leading engineering and consultancy organisations rendering technical consultancy, design and engineering, design of equipment and systems and project management services for ferrous and non-ferrous metallurgical industries. In iron and steel sector, MECON offers complete consultancy and engineerig services as well as project management services right from concept to commissioning. It also renders consultancy services in non-ferrous metals, chemicals, refractories, power plants, general engineering, defence projects, pollution control, ocean engineering and cement industry. In the area of equipment and systems design, MECON offers turnkey services for hot and cold rolling mills, processing and finishing lines for ferrous and non-ferrous metals, coke ovens, coal chemicals, cement and refractories, blast furnace equipment and gas cleaning plants through in-house engineering and research development and tie-up with world's leading firms. MECON also offers modernisation/revamping of existing plants and units to incorporate latest state-of-art technology compatible to plant working environment.

FERTILISERS

Three decades of planning and development of fertiliser industry has brought India to the frontline of fertiliser producing countries. India is today the fourth largest producer of nitrogenous fertilisers in the world. Fertiliser, being a key input for agricultural development, occupies a prestigious place in country's development strategy. As on 1 December 1989 there were 47 large fertiliser units producing a wide range of straight nitrogenous, complex and phosphatic fertilisers. Besides, there are about 90 small units producing single super phosphate and eight units producing ammonium sulphate as by-product from steel plants.

Nitrogen production capacity had increased from a modest 85,000 tonnes in 1951-52 to 81.48 lakh tonnes as on 1 December 1989. Phosphatic fertiliser capacity also increased from 63,000 tonnes in 1951-52 to 27.50 lakh tonnes of P_2O_5 in 1989-90 Against the nominal production of 16,000 tonnes of nitrogen and 11,000 tonnes of P_2O_5 in 1951-52 fertiliser production increased to 67.12 lakh tonnes of nitrogen and 22.52 lakh tonnes of P_2O_5 in 1988-89. During 1989-90 production had been targetted at a level of 70 lakh tonnes of nitrogen and 24 lakh tonnes of P_2O_5.

Despite massive increase both in capacity and production of fertilisers, substantial quantum of imports is required every year to meet country's increasing requirement of fertilisers. Average consumption per acre was 25.25 kg (provisional) during 1988-89 as against estimated 20.11 kg in 1987-88. Installation of additional fertiliser capacity is, therefore, receiving continued emphasis, An ambitious programme has been taken up to augment indigenous production capacity.

TABLE 20.8 PRODUCTION—IRON AND STEEL

('000 tonne)

PLANT	Crude Steel				Saleable Steel				Saleable Pig Iron			
	1985-86	1986-87	1987-88	1988-89	1985-86	1986-87	1987-88	1988-89	1985-86	1986-87	1987-88	1988-89
INTEGRATED STEEL PLANT												
SAIL												
1. Bhilai	2,345	2,230	2,471	3,094	2,055	2,150	2,173	2,542	388	314	202	297
2. Durgapur	875	922	936	955	724	751	835	832	143	153	179	129
3 Rourkela	1,177	1,100	1,114	1,191	1,005	1,140	1,156	1,168	30	60	97	68
4. Bokaro	2,003	2,056	2,418	2,771	1,720	1,744	1,968	2,277	502	642	641	345
5. IISCO	565	528	546	465	500	526	542	442	90	92	84	170
Total	6,965	6,836	7,485	8,476	6,004	6,311	6,674	7,261	1,153	1,261	1,203	1,009
TISCO	2,095	2,250	2,276	2,313	1,771	1,908	1,914	1,944	—	—	—	11.18
ASP	101	140 4	151 4	178.6	60	82.02	89.24	106 4	—	—	—	—
SSP	—	—	—	—	24	26.63	31 43	34 3	—	—	—	—

Three plants out of six large scale nitrogenous fertiliser plants based on gas available off the west coast have already been set up at Vijaipur (Guna), Aonla (Bareily) and Jagdishpur (Sultanpur). Remaining three plants are being set up at Babrala and Shahjahanpur (both in UP) and Gadepan (Rajasthan). A nitrogenous fertiliser plant is also being established at Kakinada in Andhra Pradesh. Three new/expanision schemes for complex phosphatic fertilisers are also under implementation. Besides, licences/letters of intent have been issued for setting up of additional phosphatic fertiliser capacity in the form of single super phosphate. After implementation of all projects now on hand, total fertiliser capacity is expected to be about 96.97 lakh tonnes of nitrogen and 31.75 lakh tonnes of P_2O_5. In addition, revamping and retrofitting of existing plants are also being considered. Total capacity by Eighth Plan (1994-95) is expected to be 98.66 lakh tonnes of nitrogen and 35.57 lakh tonnes of phoshate. Seventh Plan had laid down a capacity target of 92.53 lakh tonnes of nitrogen and 28.91 lakh tonnes of P_2O_5 by the end of Plan period.

Government is controlling statutorily, selling prices of all fertilisers in order to make them available to farmers at uniform and resonable price throughout the country. However, in the process of supporting selling prices of fertilisers. Government has been giving massive amount of subsidy over the years. Amount of subsidy on indigenous fertilisers alone, had increased from Rs 275 crore in 1981-82 to Rs 3,200 crore in 1988-89. Amount of subsidy on imported and indigenous fertilisers during 1989-90 was estimated at Rs 4,601 crore. With a view to containing subsidy on fertilisers, Government increased the statutory selling prices on 31 January 1986. Even with this increase, however, selling prices of fertilisers, today, are at the same level as they were eight years ago.

In order to enable small and marginal farmers to buy fetilisers in small quantities, all manufacturers of urea and DAP have been advised to supply 10 per cent of their production in small packs. State governments have also been advised to consider exemption from registration procedures in respect of dealers holding stocks up to 10 tonnes of fertilisers at a point of time.

Also to increase retail outlets in interior and inaccessible areas, financial assistance is being given for opening additional retail outlets to meet expenses for advance stocking and transportation of fertilisers for a distance of 20 km beyond block headquarters.

Public sector engineering and technical consultancy organisations have made considerable progress in acquisition/development of indigenous knowhow for chemical and fertiliser industry. These are: Projects and Development (India) Limited (PDIL), FACT Engineering and Design Organisation (FEDO) and Engineers Inida Ltd. (EIL). They have acquired capabilities for preparation of detailed feasibility studies, detailed engineering, procurement, erection and commissioning of plants.

Over the years, the country has developed a wide and diversified industrial base, geared especially to meet specialised requirement of fertiliser industry, *e.g.*, high pressure vessels, compressors, pumps, heat exchangers, etc.

PUBLIC UNDERTAKINGS

Public sector plays a dominant role in fertiliser industry. The first State-owned fertiliser factory went into production in 1951 at Sindri in Bihar. Second plant was set up at Nangal in Punjab, for which Nangal Fertilisers and Chemicals Limited was incorporated in February 1956. With the coming up of another festiliser plant at Trombay, Government decided to bring all public sector fertiliser units under the management of a single undertaking and Fertiliser Corporation of India Limited (FCI) was incorporated in January 1961. National Fertilisers Limited was established on 23 August 1974 with an authorised capital of Rs 150 crore for establishment of fertiliser plants in north-western region. Thereafter, Fertiliser Corporation of India and the National Fertilisers Limited were reorganised into four companies on the basis of feed-stock and geographical considerations from 1 April 1978.

FCI has now four operating units, one each at Sindri (Bihar) Gorakhpur, (Uttar Pradesh), Talcher (Orissa) and Ramagundam (Andhra Pradesh) with a total capacity of 8.06 lakh tonnes of nitrogen. Besides it has an organisation engaged in mining of gypsum in Rajasthan known as Jodhpur Mining Organisation.

National Fertilisers Limited (NFL) has, at present, five operating units, *viz.*, calcium ammonium nitrate plant at Nangal and urea plants at Nangal, Bhatinda, Panipat and Vijaipur. Fertilisers and Chemicals Travancore Limited (FACT), Udyogmandal (Kerala), has at present three operating units, one at Udyogmandal and two at Cochin. The Company is also implementing caprolactam project at Udyogmandal. Besides fertiliser, the Company is engaged in the manufacture of chemicals. Another devision of the Company, FACT Engineering and Design Organisation (FEDO), is engaged in design, engineering, procurement, supervision of construction and commissioning of fertiliser/chemical plants.

Rashtriya Chemicals and Fertilisers Limited is in charge of Trombay plants and large gas-based fertiliser plant at Thal which started commercial production in 1985. Apart from fertilisers, Trombay plants produce a wide range of industrial products.

Hindustan Fertiliser Corporation Limited has three units in production and one project under construction and commissioning. Operating units are at Namrup in Assam, Durgapur in West Bengal and Barauni in Bihar. Namrup-III project started production from 1 October 1987.

Madras Fertilisers Limited is a joint venture wherein Government holds 67.55 per cent of the equity share capital, remaining 32.45 per cent being held by National Iranian Oil Company.

Pyrites, Phosphates and Chemicals Limited, which was set up in March 1960 to explore pyrites deposits in the country, assumed independent status in September 1963. It is presently engaged in exploration of pyrites deposits at Amjhore in Bihar, in exploration-cum-production mining of pyrites deposits at Saladipura in Rajasthan and in mining of rock phosphate ore from Mussoorie Phosphorite deposits. The Company is also implementing a fertiliser project at Amjhore for production of single super phosphate.

Pyrites are used as substitutes for sulphur in manufacture of sulphuric acid and also as soil amendment material. Rock phosphate mined is powdered and supplied for direct application as a source of P_2O_5 in acidic soils.

Projects and Development India Limited (PDIL), formerly known as Fertiliser (Planning and Development) India Limited, is engaged in design, engineering, procurement and supervision of construction/commissioning of fertiliser and allied chemical plants. The company has played poineering role in developing, entirely on its own initiative, knowhow for manufacture of catalysts in India.

Paradeep Phosphates Limited (PPL) incorporated on 24 December 1981 with its registered office at Bhubaneshwar, is engaged in setting up of large phosphatic fertiliser project at Paradeep in Orissa at an estimated capital cost of Rs 618 91 crore. Phase-I of the project was commissioned in 1986 and production of di-ammonium phosphates has started.

ENGINEERING INDUSTRIES

Over the years engineering industries in the country have registered a phenomenal growth to generate a strong base in a wide range of heavy and light engineering industries covering a broad spectrum of capital goods and consumer durable products. Bulk of capital goods required for power projects, fertiliser plants, cement plants, steel plants mining equipment, petro-chemical plants are being met from indigenous production. Construction machinery and equipment for irrigation projects, diesel engines, pumps and tractors for agriculture, transport vehicles, etc., are also being met from within the country.

Engineering industries have also demonstrated their capacity to manufacture large size plants and equipment for various sectors such as power generation, fertilisers and cement.

Hindustan Machine Tools have added to their range of production CNC machining centres and improved versions of thread rolling machines. During the last few years major emphasis has been laid on development of CNC machine tools. This sector has registered a growth of nearly ten fold over the last four years and in the years to come it is going to have a major growth in range as well as production level.

Some other important items of heavy equipment produced in the country for large projects include walking draglines operating in thermal power stations and coalmines. Vibratory compactors with dual amplitude vibrations for civil projects, 35.5 tonne tyre-mounted transtrailor cranes and quayside container cranes (rail-mounted as well as tyre cranes) for container terminals. The country has started manufacturing air pollution control equipment also.

HEAVY ELECTRICAL INDUSTRY AND OTHER INDUSTRIAL MACHINERY SECTORS

A number of units in public and private sectors are manufacturing steel plant equipment, mining equipment, process equipment for fertiliser chemicals, petrochemical and petroleum industries, transport equipment including wagons for railways and other mechanical equipment.

There are 200 units engaged in manufacture of machine tools with an installed capacity of Rs 700 crore per annum (excluding aggregate production of Rs 60 crore of small scale sector). The industry has registered a significant growth during the last three decades rising from a production level of just about Rs one crore in 1956 to over Rs 300 crore in 1985 and Rs 500 crore in 1989-90. The working group appointed by Planning Commission for formulating proposals for Eighth Plan has set the production target worth Rs 4,349 crore for this sector during 1990-95.

Average annual growth rate during the last decades has been about 15 per cent. Hindustan Machine Tools Limited (HMT) is a major manufacturer of machine tools. Total production of machine tools from various plants of HMT during 1988-89 was RS 185 crore. Praga Tools Limited (PTL) manufactures a diverse range of machine tools-cutter and tools grinders, surface grinders, milling machines, copy lathes, thread rolling machines and drilling machines. Recently, through divesification programmes, the Company has added to its range of products CNC machining centres, improved versions of thread rolling machines and toolings. The Company achieved a production of Rs 47.63 crore during 1988-89

During last few years, major emphasis has been on development of CNC machine tools. There are 45 units having licences for manufacture of CNC machines. Of these 27 are manufacturing CNC leather and machining centres. Production of CNC machines and systems had increased from a level of Rs 7 63 crore in 1984 to nearly ten fold in four years. In the years to come, major growth will be in manufacture of CNC machines.

Thirty nine units are engaged in manufacture of various metallurgical and steel plant equipment wth Heavy Engineering Corporation Limited, Ranchi (incorporated in 1958) in public sector as the leading unit. Total installed capacity of the industry is approximately 96,000 metric tonnes. Production in 1988-89 was expected to reach a level of about Rs 115 crore.

There are seventeen units in organised sector engaged in manufacturing of various items for mining machinery. Mining and Allied Machinery Corporation and Jessop and Company, public sector units, are the leading manufacturers of mining machinery.

Oil drilling and 'down the hole' equipment is part of oil field equipment which comprises a wide range of equipment falling in various groups of offshore platforms/structures, offshore/onshore drilling equipment pipes/ tubes, electricals, instrumentation, transportation and conveying equipment, drilling equipment drilling accessories, etc. These items are required for oil/natural gas exploration and production. At present Mazagaon Dock Limited is the only company in the country which has developed capability for manufacture of jack-up rigs required for offshore drilling. As regards onshore drilling, BHEL, Hyderabad is manufacturing various onshore drilling rigs. Another company Triveni Engineering Works Limited is in the process of implementing the same. Capacities for manufacture of various 'down the hole' drilling/production equipment have also been established.

There are 21 units manufacturing transmission line towers with an annual installed capacity of 2,10,954 tonnes. In addition, further capacity to the extent of 1,80,000 tonnes has been licensed which is under various stages of implementation. There are four units in organised sector for manufacture of lifts and escalators. Present installed capacity of these units is 3,000 per annum. OTIS Elevators is the largest manufacturer of lifts.

Sixteen units are manufacturing complete cement plants and components thereof. Existing installed capacity has been estimated at Rs 150 crore per annum. Production during 1988-89 was estimated at Rs 80 crore.

There are 15 industrial units in organised sector manufacturing printing machines of various types. Present installed capacity is estimated at Rs 21 crore. Production during 1988 was expected to be Rs 19.5 crore.

There are 19 units in large and medium scale sector engaged in manufacture of various types of air pollution control equipment.

There are at present 19 units in organised sector engaged in manufacture of Various types and sizes of earth-moving equipment, which are widely used in coal mining land development and construction activities. Earthmoving equipment currently being manufactured cover shovels, bulldozers, crawler tractors, dumpers, vibratory compactors, loaders, motor tractors, excavators and draglines (including walking draglines).

One of the public sector undertakings has manufactured walking draglines of higher capacity which are in operation in thermal power stations and coal mines. Vibratory compactors of dual amplitude vibrations have been manufactured. At present 34 units in organised sector are engaged in manufacture of diesel engines. Production of diesal engines during 1987-88 was 1,98,800.

Requirement for cranes is directly related to industrial development programmes of the country. Different types of cranes are manufactured by 28 units in organised sector of which 10 units have developed design and manufacturing capability with suitable tie-ups with reputed foreign crane manufacturers for meeting requirement of heavy duty sophisticated specialised cranes of different sectors particularly those of ports and steel plants. Installed/available manufacturing capacity for cranes of existing units is estimated at 41,000 tonnes against a total licensed capacity of 67,000 tonnes. Crane industry has been delicensed. A very important achievement during last two-three years is the manufacture of 35.5 tonnes tyre mounted trans trailer cranes (transfer cranes) and quayside container cranes (rail-mounted as well as tyre cranes) for container terminals.

There are 14 wagon manufacturing companies of which four are in public sector and the remaning in private sector with an annual production capacity of 32,000 wagons (in terms of four wheelers).

Heavy electrical industry is in a position to meet the entire domestic demand and requisite capacity has been created in all areas. The industry has achieved self-sufficiency in major disciplines like engineering technology. Bharat Heavy Electricals Ltd. (BHEL), a public sector undertaking, is the major producer of power generation equipment in the country. It has its manufacturing plants at Bhopal, Trichy, Hyderabad, Hardwar, Ranipet, Bangalore and Jagdishpur.

There are thirteen units in organised sector manufacturing steam and hydro turbines. Of these, three are in public sector, *viz.*, BHEL's Bhopal, Hardwar and Hyderabad units. BHEL's two units at Hardwar and Bhopal, Jyoti Ltd., Vadodara. Larson and Tourbo and Flovel in private sector are engaged in manufacture of hydro turbines.

There are 32 units in organised sector manufacturing power and distribution transformers with capacity of about 44,280 kv annually. A large number of units in small scale sector are manufacturing mostly distribution transformers of small ratings. The industry was delicensed in March 1985.

At present 144 units are engaged in manufacture of various types of switchgear, motor starters, circuit breakers, etc. This industry was also delicensed in March 1985.

AUTOMOBILE

There are 13 units licensed to manufacture light, medium and heavy duty commercial vehicles. Total installed capcity in this sector is 2,64,500 per annum. Production during 1988-89 was 1,15.451. Five units in passenger car industry having installed capacity of 2,16,000 per annum produced 1,66,742 passenger cars during 1988-89. M/s Maruti Udyog Ltd. is expected to bring out a new model of three box car of 1,000 cc engine capacity by the end of 1990-91. Three units in jeep and jeep type vehicles having installed capacity of 47,000 per annum produced 37,615 in 1988-89.

In the field of two wheelers including motor cycles, scooters and mopeds, there are 24 units with an installed capcity of 32 lakh per year. Production during 1988-89 was over 16 lakh. In three wheeler sector, four units having installed capacity of one lakh produced 74,452 in 1988-89.

At present ten units are engaged in manufacture of bicycles. Total annual capacity of these units is 97.37 lakh and output in 1988-89 was about 74 lakh bicycles.

Nineteen units manufacture agricultural tractors with a total installed capacity of 1.25 lakh. As regards power tillers, five units are having industrial licence for 31,000 and have installed capacity of 16,100. There are eight units in organised sector having COB licence for manufacture of 546 self-propelled combine harvests.

SOAPS AND DETERGENTS

Fifty three units in organised sector are manufacturing soap with an installed capacity of 4,10,400 tonnes per year. Production of soap in this sector was of the order of 3,68,749 tonnes in 1988-89. There are 23 units in organised sector for manufacture of synthetic detergents with an installed capacity of 3,83,460 tonnes per year. Production of detergents was 1,82,865 tonnes in 1988-89.

LEATHER INDUSTRY

Leather industry is a highly labour-oriented industry in India. It has been identified as one of the major thrust areas for export. From Rs 584 crore during 1984-85, it is expected that export of leather and leather products would rise to Rs. 1,800 crores during 1989-90 showing an annual growth rate of around 27 per cent against a targetted growth rate of 19 per cent. Leather industry can be divided into three distinct sectors: (i) organised sector units borne on the rolls of Directorate General of Technical Development (DGTD); (ii) small scale units registered with State Directors of Industries, and (iii) unregistered small scale and cottage sector units.

During the first year of Seventh Plan domestic demand of leather footwear was estimated at 30 crore pairs. Keeping a simple rate of growth of 5 per cent per year the consumption in the first year of Eight Plan *i.e.*, 1990-91 would be 38 crore pairs which is about 0.46 pairs per capita. In addition to this, it is estimated that 260 lakh pairs of leather footwear will be exported during 1990-91. Thus, total production of leather footwear during 1990-91 would be 40.6 crore pairs. The industry will remain predominantly in small scale and cottage sectors as contribution of organised sector will be around 5 per cent of the total production. It is estimated that requirement of finished leather in manufacture of leather footwear, shoe uppers and other leather goods during 1990-91 would be 145 crore sq ft against which a production of finished leather from hides and skins in organised sector would be about 32 crore sq ft during the same period corresponding to about 22 per cent of the total production. Production of other leather goods like leather garments, handbags, wallets, etc., is still predominantly being done in small scale and cottage sectors because of its viability within an investment of Rs 35 lakh in plant and machinery.

CHEMICALS

Chemical industry plays a pivotal role in Indian economy. It ranks fourth, next only to iron and steel, engineering and textile industries.

Past few years have witnessed a rapid growth in chemicals both organic and inorganic. As against general industrial growth rate of 8.3 per cent in organised sector, chemical industries growth rate is 12.8 per cent. The country has become self-sufficient in almost all major heavy chemicals. Heavy organic and inorganic chemicals provide basic building blocks for manufacture of several downstream products like drugs, dyestuffs, pesticides, plastics, paints, etc. The industry is highly technology-oriented and a number of incentives have been given to promote research and development activities. Liberalising licensing policy over the years has encouraged setting up of medium scale units under automatic registration procedure. Small scale units are being given adequate encouragement by reserving a number of chemicals for exclusive development in small scale sector.

Development of organic chemical industry in India is of recent origin which started in April 1950 based on ethyl alcohol, manufactured from fermentation and distillation of sugarcane molasses and benzene available as a coke-oven by-product. At present, a substantial part of industry is based on feedstocks derived from petroleum. Basic organic chemicals like phenol, methanol, formaldehyde, acetone and acetic acid are manufactured in the country in substantial quantities. Major inorganic chemicals like soda ash, carbon black, calcium carbide, red phosphorous and potassium chlorate are all manufactured in the country and a position of near self-sufficiency has been achieved in all these chemicals.

Alcohol producing industry was started in 1940 mainly to utilise molasses produced from sugar factories. With growth of alcohol-based chemical industry in the '50s and '60s production of alcohol has assumed importance in its own right. Oil crisis has revived interest in the use of renewable feedstocks like alcohol. Well before this revival, a large alcohol-based chemical industry had come up in the country. It is mainly in India that a wide range of organic chemical products are manufactured on a commercial scale with alcohol as feedstock. Major downstream products made from ethyl alcohol(industrial alcohol) are acetic acid, acetic anhydride, acetone, butanol, ethyl acetate, polyethylene, stryne, PVC and synthetic rubber. A perspective plan for chemical industry covering the period up to 2000 has been drawn up for evaluating and planning for industrial development in chemical sector during the 90s.

PESTICIDES

Pesticides which include insecticides, fungicides, rodenticides, etc., have assumed a vital role both for agriculture and public health purposes. Pesticides industry has made steady progress during last three decades. Basic manufacture of pesticides commenced in India in 1952 with the setting up of a plant at Rishra near Calcutta for manufacture of benzene hexa-chloride(BHC) which was followed by DDT plant in 1954 in Delhi. There are 52 technical grade pesticides being manufactured in the country. More than 130 insecticides have also been approved for use. Forty-seven units are currently engaged in manufacture of technical grade pesticides and over 500 units are making formulations.

As a result of increase in production of pesticides in the country, imports of technical grade pesticides have come down substantially. A large number of additional approvals have been granted for manufacture of later generation pesticides such as synthetic pyrethroids and wheat weedicides, imports of pesticidal formulations generally not permitted.

The country is making sizeable export of basic inorganic and organic chemicals including dyes, dye intermediates, alcohol and coal tar chemicals.

Exports of chemicals and allied products during 1989-90 was around

Rs 2,100 crore. In 1988-89, 225 lakh litres of alcohol and 1.15 lakh tonnes of molasses were exported while by November 1989 exports of 375 lakh litres of alcohol and 1.75 lakh tonnes of molasses were effected.

There are two public sector units in chemicals sector. These are Hindustan Organic Chemicals Ltd. (HOCL) manufacturing basic chemicals and Hindustan Insecticides Ltd. (HIL) manufacturing pesticides primarily for National Malaria Eradication Programme. HOCL was incorporated on 12 December 1960 with an authorised capital of Rs 12 crore and with the main objective of manufacturing chemical intermediates required for drugs, dyestuffs, rubber chemicals and other vital chemicals. Authorised capital was increased from time to time and it now stands at Rs 70 crore. HOCL started its operation in 1970 at Rasayani, near Raigad, Maharashtra. The Company has also set up a phenol project at Cochin for manufacture of 40,000 TPA of phenol and 24,000 TPA of acetone at a cost of about Rs 100 crore. This plant was commissioned in November 1987. HOCL has also floated a subsidiary company, namely, Hindustan Fluors Carbons Ltd. for setting up a Poly Tetra Fluors Ethylene(PTFE) plant of 500 TPA capacity in Medak district of Andhra Pradesh at an estimated cost of Rs 31.84 crore, jointly with State Industries Corporation and public participation in equity capital. PTFE production also commenced in November 1987. At their R and D semi commercial pilot plants regular production of 150 TPA each of Cyclohexylamine and Nutenediol has already started. A process for production of Diethy Meta Toluidine (DEMTD) has also been developed.

HIL, which was incorporated in March 1954, has at present three units at Delhi, Udyogmandal (Kerala) and Rasayani (Maharashtra). It also has a subsidiary company, namely, Southern Pesticides Corporation (SPEC) with headquarters at Hyderabad and factory at Kovvur. HIL is engaged in manufacture of DDT, BHC, Malithion and Endosulfan, the four major pesticides used in the country. Authorised capital of HIL as on 31 December 1989 was Rs 50 crore.

PHARMACEUTICALS

Indian pharmaceutical industry, over the years, has made a tremendous progress and the country has achieved near self-reliance in this area. Growth rate of this industry has been around 10 per cent per annum consistently for the last more than two decades and it is one of the fastest in industrial sector. This has put the country in the fore front at least in developing world in this sector. The country has achieved reliability of production of most sophisticated and vital drugs both for domestic and international markets. It has been able to develop its own technologies and has also obtained latest foreign technologies for production of vital basic life saving drugs which were hitherto being imported. So much so that the latest third generation antibiotics have also been introduced in the country. Production has started in some cases and in the remaining, it is likely to start soon as a number of projects are in the pipeline.

Due to peculiar nature of this industry, being a life line industry, package of policies dispensation for it has been special. In 1986, new policy measures for drug industry were announced under which top priority has been given to best standards of manufacture and quality. Our exports which are mostly to the most advanced nations amply prove that quality standards of Indian pharmaceutical products are second to none in the world. New policy dispensation has ensured removal of bottlenecks in obtaining various approvals for making investments in pharmaceutical sector. In this sector Government allows production for cent per cent export without any prior approval.

Performance of drugs and pharmaceutical industry in exports has been showing an increasing trend over the years. A wide range of bulk drugs and formulations are being exported to several countries including USA, West European countries and USSR. In 1988-89, drugs of Rs 468 crore were exported, an increase of more than 60 per cent over the previous year's exports of Rs 289.69 crore. A perspective 15-year export plan has been formulated to help boost exports in this sector. As drug molecules are discovered after years of research, it is not possible for any country in the world to be totally self-reliant. Some drugs are bound to be imported everywhere. India is also importing some drugs which are later discoveries or to supplement indigenous production. Nevertheless this sector has always given a trade surplus.

Present production covers a wide range of bulk drugs including antibiotics, vitamins, steroids and hormones, semi-synthetic penicillins, synthetic phytochemicals and biological products, besides practically the entire range of formulations required by medical profession. Technology adopted for production of bulk drugs covers intricate and sophisticated fermentation technology, synthetic operations and extraction and purification of active principles contained in plant and animal kingdoms. Production of drugs and pharmaceuticals in 1988-89 was valued at about Rs 3,700 crore at 1979-80 prices. Production in 1989-90 is estimated to worth Rs 3,970 crore.

There are about 250 units in organised sector; five of these are in public sector (IDPL, HAL, BCPL, SSPL and BIL), and six in joint sector. There are 11 MRTP companies without foreign equity and seven MRTP as well as FERA ones. About 5,000 units in small scale sector are engaged in production of drugs. Of these, more than 100 are engaged in production of bulk drugs.

Indian Drugs and Pharmaceuticals Ltd. (IDPL) was incorporated as a company under the Companies Act, 1956 on 5 April 1961. It has five plants located at Rishikesh for the manufacture of antibiotics, at Hyderabad for the manufacture of synthetic drugs, at Madras for surgical instruments and formulations, at Gurgaon for formulations and at Muzaffarpur for drugs and chemical intermediates.

IDPL produces bulk drugs, formulations, surgical instruments and fine chemicals. IDPL has three subsidiaries set up in association with state governments in Rajasthan, Uttar Pradesh and Orissa. These are: Rajasthan Drugs and Pharmaceuticals Limited, Jaipur; Uttar Pradesh Drugs and

Pharmaceuticals Limited, Lucknow, and Orissa Drugs and Chemicals Limited, Bhubaneshwar.

Hindustan Antibiotics Limited, incorporated on 1 March 1954, is manufacturing penicillin, streptomycin, ampicillin, gentamycin, hamycin and aureofungin. It has three subsidiary companies set up in collaboration with the state governments, namely, Maharashtra Antibiotics and Pharmaceuticals Limited at Nagpur, Karnataka Antibiotics and Pharmaceuticals Limited at Bangalore and Manipur State Drugs and Pharmaceticals Limited.

Government has also nationalised three sick drug manufacturing companies. Smith Stainstreet Pharmaceuticals Limited which was taken over under I (D&R) Act, 1951 on 4 May 1972, was nationalised on 1 October 1977. The company is engaged in manufacture of formulations only. Bengal Chemicals and Pharmaceuticals Limited was taken over on 15 December 1977 and was nationalised on 15 December 1980. The company has at present four manufacturing units—two in West Bengal, one in Kanpur and one in Bombay. This undertaking is engaged in the manufacture of chemicals like sulphuric acid, alum, chrome salt, home products like soaps, hair oil, perfumes, etc., and drugs and pharmaceuticals like dapsone, caffeine, ampicillin, doxycycline, etc., and their formulations. Bengal Immunity Limited, taken over by Government on 18 May 1978, was nationalised 1 October 1984. The Company is engaged in manufacture of sera, antivenom and chloroquin phosphate.

PETRO-CHEMICALS

With their superior properties, petro-chemical products are substituting traditional raw materials like wood, glass and metal, etc. It has opened up immense possibilities of application both for domestic as well as industrial products. Use of plastics in various sectors is bringing about revolutionary changes.

Petro-chemical industry has come up in a big way in India in recent years. Range of products covers basic building blocks and intermediates, plastic raw materials, synthetic fibres, synthetic rubber, synthetic detergent raw materials and a host of other products. Production of synthetic fibres which was around 1.5 lakh tonnes in the terminal year of Sixth Plan increased to around 3.17 lakh tonnes in 1988-89. Similarly, production of plastic raw materials increased from around 2.7 lakh tonnes to 3.30 lakh tonnes in 1988-89 despite closure of two plants. Also with the commissioning of new capacities, there has been phenomenal increase in domestic availability of LAB, which is used in manufacture of synthetic detergents. As of now, the country has not only achieved self-sufficiency in synthetic fibres and LAB, but has also exportable surplus of these products. Considering the impact that the petro-chemicals can make in vital sectors of economy, it has been identified as a thrust area for development. A number of new petrochemical complexes/ projects are planned to be set up in the country during

Eighth Five Year Plan to cater to growing demand for petro-chemical products.

There are three organisations in petro-chemicals under administrative control of the Department of Chemicals and Petrochemicals. Indian Petrochemical Corporation Ltd. (IPCL), Vadodara has set up an integrated petro-chemical complex near Vadodara producing xylenes, DMT, LDPE, PP, PBR, ethylene oxide/glycol, acrylonitril, LAB, acrylates and petroleum resins. Gross turnover of IPCL in 1988-89 was Rs 1,036 crore At present, IPCL is engaged in implementation of Maharashtra Gas Cracker Complex at Nagothene. In this complex LDPE, LLDPE, PP, HDPE and MEG will be produced.

Petrofils Cooperative Limited is a joint venture of Government and cooperative of yarn users to manufacture polyester filament yarn, near Vadodara in Gujarat Petrofils has also set up a 6,000 tonnes per annum capacity nylon filament yarn plant.

Central Institute of Plastic Engineering and Technology was set up in 1968 under United Nations Development Programme for imparting specialised training and providing assistance in development and growth of plastic industries Main objectives of the Institute are trained manpower development, application development, testing and quality control, consultancy and advisory services and documentation. One extension centre of the Institute was set up at Ahmadabad in 1981-82. Three such centres are being completed at Lucknow, Hyderabad and Bhubaneshwar. Work is also in progress for two more centres at Bhopal and Imphal. Emphasis at these centres would be on electronics, automobiles, engineering, plastics, housing and packaging. Four more centres are proposed to be set up at Pune, Bangalore, Amritsar and Jaipur during Eighth Plan.

MINERALS

India is richly endowed with minerals like coal (non-coking), bauxite (metallurgical), barytes, iron ore, mica, gypsum, chromite (fines and low grade), dolomite (non-flux grade) and limestone while it is deficient in minerals like asbestos, phosphates, lead, tungsten, tin, platinum group, gold and diamonds.

Under the Constitution, mineral rights and administration of mining laws are vested in state governments.

Central government, however, regulates development of minerals under the Mines and Minerals (Regulation and Development) Act, 1957 and the rules and regulations framed under it. The statute empowers Centre to formulate rules for: (i) grant of prospecting licences and mining leases, (ii) conservation and development of minerals and (iii) modification of old leases. The Mines and Minerals (Regulation and Development) Act, 1957 came into force on 1 June 1958. A number of amendments to this Act were made in 1972 and major amendments were made in 1986.

MINERAL RESOURCES

Principal minerals found in the country, along with their estimated reserves are given below.

BAUXITE

In-situ resources of all grades of bauxite in the country are estimated at 291.1 crore tonnes. This places India in the fifth slot in overall global bauxite resources. Important deposits occur in Andhra Pradesh, Bihar, Goa, Gujarat, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh.

BARYTES

India possesses huge reserves of barytes which are placed at 7.12 crore tonnes. Most of the reserves are located at Mangampet taluka in Cuddapah district, Andhra Pradesh. Other minor occurrences are reported from Rajasthan, Tamil Nadu, Himachal Pradesh, Bihar, West Bengal, Maharashtra, Karnataka, Madhya Pradesh and Uttar Pradesh.

COAL AND LIGNITE

Coal is India's largest mineral resource and presently India is the fifth largest producer of coal in the world. Vast deposits of coal of Gondwana formations occur in West Bengal, Orissa, Bihar, Madhya Pradesh. Andhra Pradesh and Maharashtra. It also occurs in tertiary formations in Assam, Arunachal Pradesh, Meghalaya, Jammu and Kashmir and Nagaland. Total resources of coal are estimated at 17,633 crore tonnes, comprising 14,863 crore tonnes of non-coking coal and 2,770 crore of prime/medium/semi-coking coal. By contrast with India's coal reserves, lignite resources are relatively modest at 590 crore tonnes of which the bulk of the reserves are located in and around Neyveli in Tamil Nadu. Significant lignite resources also occur in Rajasthan, Gujarat and Jammu and Kashmir.

CHROMITE

Total reserves of *in-situ* chromite, including lumps and fines, are estimated at 11.95 crore tonnes. Deposits of economic significance occur in Andhra Pradesh, Bihar, Karnataka, Maharashtra, Manipur, Orissa and Tamil Nadu. However, refractory grade reserves of chromite are very meagre.

COPPER

Major and important copper ore producing areas are in Singhbhum district (Bihar), Balaghat district (Madhya Pradesh) and Jhunjhunun and Alwar districts (Rajasthan). In addition small production of copper ore comes from Khammam district (Andhra Pradesh), Chitradurga and Hassan districts (Karnataka) and Sikkim. Total all-India *in-situ* reserves and resources are estimated at 115.17 crore tonnes with a metal content of about 90.35 lakh tonnes.

Working mines and projects under consideration/formulation account for 49.95 crore tonnes with a metal content of 65.88 lakh tonnes.

DIAMOND

Total reserves and resources in the country are placed at 10.8 lakh carats. Main diamond bearing areas in India are Panna belt in Madhya Pradesh, Ramallakota and Bangampalle conglomerate rocks in Kurnool district and gravels of Krishna river basin in Andhra Pradesh Presently the only diamond pipe under exploitation is at Panna.

DOLOMITE

Total reserves of dolomite of all grades are placed at 460.97 crore tonnes. Principal producing states for dolomite are Orissa, Madhya Pradesh, Gujarat, Bihar, Uttar Pradesh and West Bengal.

GOLD

There are three important gold fields in the country, namely, Kolar field in Kolar district and Hutti gold field in Raichur district (both in Karnataka) and Ramagiri gold field in Anantpur district (Andhra Pradesh). Total *in-situ* gold ore reserves and resources are estimated at 5.04 crore tonnes with a total gold content of 103.17 tonnes. However, Kolar Gold field mines and Hutti account for bulk of gold ore reserves, equivalent to about 57.6 tonnes of *in-situ* gold.

FIRECLAY

India has vast resources of fireclay with identified reserves of 70.31 crore tonnes Fireclay occurs in India mainly associated with coal beds of Gondwana and tertiary basins. Major fireclay producing states are Bihar, Gujarat, Madhya Pradesh, Orissa, Tamil Nadu, Rajasthan, West Bengal and Andhra Pradesh.

FLUORSPAR

Fluorspar mainly occurs in Gujarat, Madhya Pradesh and Rajasthan with total recoverable reserves estimated at 18.8 lakh tonnes.

GYPSUM

Total reserves and resources of gypsum in the country are placed at 120 crore tonnes, of which recoverable reserves are 31.91 crore tonnes. Bulk of domestic production of mineral gypsum comes from Rajasthan and Tamil Nadu, Jammu and Kashmir, Himachal Pradesh and Uttar Pradesh. Gujarat also produces small quantities.

GRAPHITE

Recoverable reserves of graphite are estimated at 46.5 lakh tonnes, of which 31 lakh tonnes occur in Kerala and Bihar and the rest in Orissa, Rajasthan, Tamil Nadu and Andhra Pradesh. In addition conditional (sub-marginal) resources of 15.57 lakh tonnes of all grades have been estimated chiefly in Arunachal Pradesh, Jammu and Kashmir, Kerala and Madhya Pradesh. Principal producer of graphite in the country is Orissa.

ILMENITE

Total reserves of ilmenite are estimated at 10 crore tonnes, mainly in beach sands on eastern and western coasts of India. Of the workable deposits of this type, those in Kerala, Orissa and Tamil Nadu are important.

IRON ORE

India is favourably endowed with iron ore resources, estimated at 2,071 crore tonnes, of which 1,191 crore tonnes are haematite and 879.9 crore tonnes magnetite ore. Haematite ore mainly occurs in Bihar, Orissa, Madhya Pradesh, Maharashtra, Goa, and Karnataka. Large reserves of magnetite ore occur along west coast, primarily in Karnataka with minor occurrences in Kerala, Tamil Nadu and Andhra Pradesh.

KAOLIN

India possesses vast recources of kaolin and ball clay with kaolin resources being placed at 87.16 crore tonnes. Currently principal producing states for Kaolin are Bihar, Gujarat, Rajasthan and West Bengal. Kerala, Haryana, Orissa and Madhya Pradesh also produce significant quantities. Ball clay is chiefly produced in Rajasthan, Andhra Pradesh and Gujarat.

LEAD-ZINC

Lead-zinc ore resources occur in Rajasthan, Meghalaya, Gujarat, West Bengal, Uttar Pradesh, Andhra Pradesh, Tamil Nadu, Orissa and Sikkim. However, 95 per cent of the known resources are localised in south-central Rajasthan and the adjoining part of Gujarat. Total identified ore resources are placed at 38.28 crore tonnes equivalent to an *in-situ* metal content of 56 lakh tonnes of lead and 183 crore tonnes of zinc.

LIMESTONE

Limestone occurs extensively in the country and is produced in almost all states. Major producing states are Madhya Pradesh, Tamil Nadu, Andhra Pradesh, Gujarat, Bihar, Orissa, Rajasthan and Karnataka. Total recoverable reserves of limestone of all grades are estimated at 6,930 crore tonnes.

MANGANESE

Total reserves of manganese ore are estimated at 15.8 crore tonnes. Rich deposits of manganese ore occur in Andhra Pradesh, Goa, Gujarat, Karnataka, Madhya Pradesh, Tamil Nadu, Bihar, Orissa and Rajasthan. Major producers are Orissa, Karnataka, Madhya Pradesh and Maharashtra.

MICA

India is world's leading producer of sheet mica and accounts for about 60 per cent of global mica trade. Economic deposits of mica occur in three important belts in Bihar, Andhra Pradesh and Rajasthan. Bihar, which has the richest mica belt, accounts for almost 60 per cent of India's output in terms of value. Though large mica resources are existing, estimates have not so far been made because of irregular nature of pegmatites as well as erratic nature of mica mineralisation in pegmatites.

NICKEL

Nickel ore is found in Cuttack, Keonjhar and Mayurbhanj districts of Orissa. Main occurrence is in Sukinda belt, Cuttack district. Minor occurrences are also reported from Bihar, Manipur, Nagaland, Maharashtra, Karnataka and Rajasthan. Total nickel ore resources which are presently sub-marginal, are estimated at 2.3 crore tonnes.

PHOSPHATE MINERALS

Deposits of phosphorites are located in Chhatarpur, Sagar and Jhabua districts of Madhya Pradesh, Udaipur, Jaisalmer and Banswara districts of Rajasthan and Dehra Dun, Tehri and Lalitpur districts of Uttar Pradesh. Besides, apatite deposits of commercial importance are reported to occur in Bihar, Andhra Pradesh, Rajasthan, West Bengal and Tamil Nadu. Total reserves of rock phosphate are estimated at 11.46 crore tonnes and of apatite at 20 lakh tonnes. In addition, conditional resources of 13.07 crore tonnes of rock phosphate and 1.05 crore tonnes of apatite have also been estimated.

TUNGSTEN

Reserves of tungsten ore are placed at 36,313 tonnes with 65 per cent WO_3 and tungsten resources at 2,38,075 tonnes of 65 per cent WO_3 content. Tungsten ore occurs in Rajasthan, Maharashtra, Karnataka, West Bengal, and Uttar Pradesh. The only producing mine in the country is at Degana in Rajasthan.

MAGNESITE

India is having large resources of magnesite which is an important refractory mineral. Total recoverable reserves of magnesite are estimated at

22.18 crore tonnes. Presently, chief sources of magnesite are in the districts of Salem in Tamil Nadu and Almora in Uttar Pradesh. Deposits of magnesite also occur in Chamoli and Pithoragarh districts of Uttar Pradesh, Mysore and Hssan districts of Karnataka and in Jammu and Kashmir and Kerala.

KYANITE AND SILLIMANITE

Kyanite and sillimanite are other important refractory minerals. Principal sources of supply of kyanite are Singhbhum deposit of Bihar and Bhandara deposit of Maharashtra. A small quantity is also produced from Karnataka and Rajasthan. Total recoverable reserves of Kyanite are placed at 15 lakh tonnes. In addition 17.12 crore tonnes of conditional (sub-marginal) resources have also been estimated. Lumpy sillimanite is chiefly supplied by Meghalaya and Maharashtra with a small quantity from Madhya Pradesh. Besides sillimanite occurs in beach sand deposits of Kerala, Orissa and Tamil Nadu.

Total reserves of sillimanite are placed at 5.46 crore tonnes.

OTHER MINERALS

Other minerals occurring in significant quantities in India are bentonite (Gujarat, Rajasthan, Bihar, Jammu and Kashmir and Tamil Nadu), corundum (Maharashtra, Madhya Pradesh, Karnataka and Andhra Pradesh), calcite (Rajasthan, Madhya Pradesh, Andhra Pradesh and Gujarat), Fuller's earth (Rajasthan, Karnataka and Andhra Pradesh), felspar (Rajasthan, Andhra Pradesh, Tamil Nadu and Madhya Pradesh), garnet (Tamil Nadu, Rajasthan and Andhra Pradesh), pyrite (Bihar and Rajasthan), steatite (Rajasthan, Uttar Pradesh, Andhra Pradesh, Tamil Nadu and Bihar), wollastonite (Rajasthan and Gujarat) and zircon (beach sands of Tamil Nadu, Kerala and Orissa).Quartz and other silica minerals are widespread and occur in almost all states. Besides the country has vast resources of building, dimension and ornamental stones such as granite, marble and slate. While granite is chiefly mined in Tamil Nadu, Karnataka, Andhra Pradesh and Rajasthan, marble is extensively mined in Rajasthan, Uttar Pradesh and Gujarat. Slate is produced principally by Madhya Pradesh, Andhra Pradesh and Haryana.

MINERAL EXPLORATION AND DEVELOPMENT

A number of organisations are engaged in exploration and development of mineral resources in India. These include Geological Survey of India, Indian Bureau of Mines and a number of public sector undertakings.

GEOLOGICAL SURVEY OF INDIA

Geological Survey of India (GSI) is the main national organisation for locating mineral resources (except oil, natural gas and atomic minerals).

GSI is responsible for preparation of systematic geological mapping of hard rock area as well as quarternary geolocial formations. Its functions also encompass fields of marine geosciences, water resources development projects, foundation engineering, land use and environmental projects. GSI is carrying out research both fundamental and applied in various fields such as geochronology, stratigraphy, palaeontology, petrology, remote sensing and geophysics. It has also been participating in Indian expeditions to Antarctica right from the first expedition.

GSI with its headquarters at Calcutta functions though six regions, three specialised wings and a training institute. Each year GSI takes up about 1,100 investigations in geological mapping, mineral assessment, geotechnical and environmental studies, air-borne geophysical surveys as well as geological and geophysical surverys in bordering seas. Output of these efforts is in the form of scientific and technical reports, professional papers, maps and inventories and various types of publications such as memoirs, records, bulletins, Indian minerals, and *Palaeontologica Indica*.

INDIAN BUREAU OF MINES

Indian Bureau of Mines (IBM) is a multi-disciplinary scientific and technical department primarily responsible for conservation and scientific development of mineral resources, other than coal, petroleum, natural gas, atomic minerals and minor minerals. It scrutinises mining laws before granting approval, undertakes inspection and study of mines and research on beneficiation of low grade ores and minerals and on special mining problems. It provides technical consultancy services to mining industry for survey and geological appraisal of mineral resources and preparation of feasibility reports of mining projects including beneficiation plants. It advises Central and state governments on all aspects of mineral industry, trade and legislation. IBM has its headquarters at Nagpur with 12 regional offices and three well-equipped ore dressing laboratories and pilot plants.

IBM functions as a 'data bank' for mines and minerals and publishes periodically-related statistical information.It also brings out technical publications in the form of monographs on individual minerals and bulletins on different connected subjects. Important publications are: *Indian Minerals Year Book* (Annual), *Bulletin of Mineral Information* (Quarterly), *Consumption of Non-ferrous Metals in India (Copper, Lead, Zinc)* (Quarterly), *Mineral Statistics of India* (Half-Yearly), *Monthly Statistics of Mineral Production, Foreign Trade in Minerals and Metals* (Annual) and *Indian Mineral Industry at a Glance* (Annual).

PUBLIC SECTOR MINING UNDERTAKINGS

Department of Mines has administrative responsibility for following undertakings: (1) Hindustan Zinc Limited (HZL) - zinc and lead,(2) Hindustan Copper Limited (HCL) - Copper,(3) Bharat Gold Mines Limited (BGML) - gold, (4) Bharat Aluminium Co. Ltd. (BALCO)-aluminium, (5) National Aluminium Co. Ltd., (NALCO) - aluminium, (6) Mineral Exploration Corpn. Ltd. (MECL) - exploration and (7) Sikkim Mining Corporation - copper, zinc and lead.

HINDUSTAN ZINC LIMITED

Hindustan Zinc Limited (HZL) was incorporated in January 1966 to take over operations of the erstwhile Metal Corporation of India and to develop mining and smelting capacities for zinc and lead. Starting with 500 tonnes per day at Mochia in Rajasthan and 3,600 tonnes per year lead smelter at Tundoo in Bihar, HZL has now seven operating mines with a capacity of 8,740 tonnes of ore per day, two zinc smelters with a capacity of 79,000 tonnes per year and two lead smelters with a capacity of 30,000 tonnes per year.

In addition to production of primary metals - zinc and lead, the Company produces a number of by-products such as cadmium, silver, sulphuric acid, phosphoric acid, fertilisers, zinc sulphate and copper sulphate.

Based on lead-zinc deposits of Rampura-Agucha in Bhilwara district, a new open pit mine at Rampura Agucha and a new smelter at Chanderiya in Chittorgarh district is under construction. Total cost of the project is estimated at Rs 366.40 crore. The smelter will have a capacity of 70,000 tonnes zinc and 35,000 tonnes lead per annmum. It will be operational during 1991-92.

HINDUSTAN COPPER LIMITED

Hindustan Copper Limited (HCL) is the sole producer of indigenous primary copper metal and has been playing a vital role in boosting copper production in the country. HCL was incorporated in November 1967 to take over from National Mineral Development Corporation, projects, schemes and studies pertaining to exploration, exploitation, mining and smelting of copper. In 1972, the erstwhile Indian Copper Corporation Ltd., a company incorporated in England, was nationalised and merged with HCL. HCL has seven operating units at: (i) Khetri Copper Complex in Jhunjhunun distt., Rajasthan, (ii) Indian Copper Complex at Ghatsila, Bihar, (iii) Malanjkhand Copper Project in Balaghat distt., M.P., (iv) Rakha Copper Project in Singhbhum distt., Bihar, (v) Dariba Copper Project in Alwar distt., Rajasthan, (vi) Chandmari Copper Project in Jhunjhunun distt., Rajasthan and (vii) Lapso Kyanite Mines in Singhbhum, Bihar.

Current annual capacity of HCL is 54,000 tonnes of copper in concentrates and 42,000 tonnes of refined copper. In addition HCL produces a number of by-products *viz.*, gold, silver, nickel, selenium, tellurium. etc.

With a view to increase production of indigenous copper, HCL has taken up feasibility studies for integrated development of Singhbhum copper belt as well as major expansion of Malanjkhand copper project. These studies will indentify areas for development of new mines or expansion of existing ones during the 90s.

HCL is also setting up a continuous cast copper plant at Taloja with an installed capacity of 60,000 tonnes per annum

BHARAT GOLD MINES LIMITED

Bharat Gold Mines Limited (BGML) operates Kolar gold mines where gold mining started in 1880 under M/s John Taylors Sons, a company incorporated in England This Company continued operating these mines till 1956 when they were taken over by Government of Karnataka.

BGML was incorporated in 1972 to take over and operate these mines. There are three working mines *viz.*, Mysore mine, Nundi Drug mine and Champion Reef mine. Besides this, BGML is also exploiting Yeppamana mine project in Andra Pradesh. Mining is carried out in Kolar gold fields under extremely difficult conditions. Mining has reached a depth of over 3,200 metres at Kolar gold fields involving problems of heat and ground control. Gifford shaft, measuring 2,190 metres from collar, is perhaps the deepest shaft in the world.

Due to depth of mining and depletion of gold reserves, mining operations of BGML are uneconomic. Exploration for development of new shallow mines is being actively pursued. Further, taking advantage of skilled manpower, technical expertise and available infrastructure diversification plans have been prepared to cover areas of mine construction, project engineering and manufacture of mining machinery.

Projects and Contracts division of BGML was established in 1973 for mine construction work and has already executed a large number of shaft sinking and mine development jobs. The Company has ambitious programmes in this fields to serve requirements of mining industry in the country during 90s.

BGML has four central workshops which besides catering to maintenance requirements of their own mines, produce variety of mining equipment for the market. The Company is planning to strengthen manufacturing activities with regard to traditional items as well as to diversify into new lines of product.

BHARAT ALUMINIUM COMPANY LIMITED

Bharat Aluminium Company Limited (BALCO), the first unit in public sector for production of aluminium, was incorporated in November 1965 for setting up an integrated alumina/aluminium complex at Korba in Bilaspur district of Madhya Pradesh, based on bauxite deposits in Amarkantak/Phutka-pahar area. The Plant has an installed capacity of two lakh tonnes per annum and was commissioned in 1973. The smelter was commissioned in phases, corresponding to availability of electric power from Madhya Pradesh Electricity Board. The final phase was commissioned in September 1984 which brought the installed capcity of the smelter to one lakh tonne per annum.

A 270 mw captive thermal power station was commissioned in 1987-88 for facilitating operations of Korba complex by reducing dependence on Madhya Pradesh Power Supply Board. Amarkantak and Phutka-pahar bauxite deposits are nearing the end of economic working life. Till suitable alternative captive sources for steady supply for bauxite are established, arrangements are being made to obtain bauxite from Panchpatmali mine of NALCO and some private mine operators in Madhya Pradesh.

NATIONAL ALUMINIUM COMPANY LIMITED

National Aluminium Company Limited (NALCO) is the biggest integrated bauxite/alumina/aluminium project in Asia, based on extensive bauxite deposits in Orissa on east coast of India. This Company was incorporated on 7 January 1981 to exploit these deposits. The project includes a 24 lakh tonnes per year bauxite mine at Panchpatmali (Koraput), 8 lakh tonnes per annum alumina plant at Damanjodi (Koraput), 2,18,000 tonnes per annum aluminium smelter at Angul (Dhenkanal), 600 mw capacity captive power plant at Angul (Dhenkanal), and port facilities at Vishakhapatnam (Andhra Pradesh) for export of alumina and import of caustic soda.

Technical knowhow and basic engineering packages were supplied by M/s Aluminium Pechiney of France. Detailed engineering, construction, supervision, procurement assistance and overall monitoring of the Project have been done by Engineers India Ltd. Trial production was started in 1987-88. 1988-89 was the first year of commercial production when over 60 per cent of the rated capacity was achieved.

NALCO entered export market of aluminia in January 1988 and aluminium metal in September 1988.

MINERAL EXPLORATION CORPORATION LIMITED

Mineral Exploration Corporation Limited (MECL) was registered in 1972 to undertake detailed mineral exploration for assessing mineral reserves in the country. Besides, the Corporation is engaged in mine construction, geo-technical work at dam sites and drilling and construction of tubewells. The Corporation with its headquarters at Nagpur, carries out detailed mineral exploration on behalf of Government, for public and private sector enterprises and organisations, state governments, etc., on contractual basis. It plays the role of a premier exploring agency in the country. Since inception in 1972, the Company has proved about 2,430 crore tonnes of different minerals/ores comprising coal, bauxite, base metals, gold, iron ore, limestone, etc.

SIKKIM MINING CORPORATION

Sikkim Mining Corporation (SMC) was established as a joint venture of Government of Sikkim and Government of India in 1960 by a proclamation of the erstwhile Sikkim Durbar.

SMC produces low grade polymetallic complex ore from its Bhotang

TABLE 20.9 PRODUCTION OF IMPORTANT MINERALS

(Value Rs crore)

Mineral	Unit of Qty.	1985		1986		1987		1988		1989[5]		1990[4] January-March	
		Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
ALL MINERALS			9,122		10,149		11,742		11,481		14,176		4,309
Coal	MT	149	3,070	162	3,742	177	4,086	188	4,299	203	4,698	66	1,726
Lignite	MT	7.8	131	8.0	142	8.3	167	8.5	181	8.5	243	2.8	97
Natural Gas[1]	CCM	469	16	663	23	633	22	679	24	883	1,251	240	345
Petroleum (crude)	MT	30	4,518	31	4,718	30	5,315	32	5,729	33	5,975	8.6	1,569
METALLIC MINERALS													
Bauxite	MT	2.3	20	2.7	27	2.7	31	3.8	59	4.3	72	1.5	29
Chromite	Th.T	569	46	630	60	625	64	823	91	948	105	385	42
Copper Ore	MT	4.2	90	4.5	94	5.1	106	5.1	116	5.1	120	1.3	32
Gold	K.G.	1,853	51	1,931	56	1,864	55	1,943	65	2,000	64	563	17
Iron Ore	MT	44	254	52	314	51	312	49	345	49	364	14	110
Lead Conc	Th.T	35	23	44	29	47	31	40	28	45	32	12	9
Manganese Ore	Th.T	1,269	33	1,284	38	1,302	38	1,298	41	1,320	44	343	13
Silver	K.G.	25,587	10	35,266	15	37,943	16	40,958	22	36,244	19	8,778	4.7
Zinc Conc.	Th.T	87	45	90	45	105	53	118	62	123	64	38	19
NON-METALLIC MINERALS													
Apatite	Th.T	15	0.4	11	0.4	12	0.4	12	0.3	10	0.3	4	0.1
Phosphorite	Th.T	934	30	656	28	670	28	721	34	658	31	184	7
Asbestos	Th.T	30	1.9	27	1.9	29	1.4	30	1.3	37	0.7	15	0.2
Barytes	Th.T	589	8.7	337	6.6	247	4.7	483	7.2	566	10	158	2.8
Diamond	Th.CAR	16	2.4	16	2.5	16	3.5	14	4.1	15	5.3	3	1.5
Dolomite	MT	2.3	15	2.2	14	2.2	15	2.2	15	2.3	15	0.6	4.0
Fireclay[2]	Th.T	663	3.0	705	3.4	634	3.2	606	3.1	624	3.3	200	0.9

TABLE 20.9 *(Continued)*

(Value Rs crore)

Mineral	Unit of Qty.	1985		1986		1987		1988		1989[3]		1990[4] January-March	
		Qty	Value	Qty	Value	Qty.	Value	Qty	Value	Qty	Value	Qty	Value
Fluorite (Graded)	Th.T	6.8	1.2	5.8	1.4	4.4	1.1	5.1	1.3	5.3	1.5	2.4	0.8
Fluorite	Th.T	16	5.7	11	4.1	12	5.4	12[5]	5.4[5]	19	8.3	5.4	2.3
Gypsum	MT	1.3	5.9	1.6	8.3	1.7	9.7	1.4	9.2	1.4	9.5	0.4	2.6
Kaolin	Th.T	745	9	684	9	526	8.4	546	9.6	602	11.9	185	4.0
Kyanite	Th.T	31	1.7	32	1.7	40	2.3	37	2.9	39	3.1	14	0.9
Sillimanite	Th.T	14	1.4	13	1.2	14	1.3	13	1.3	17	1.6	9.3	1.1
Limestone	MT	49	197	53	223	57	224	62	276	64	281	18	78
Lime *Kankar*	Th.T	98	0.6	108	0.7	88	0.6	122	0.7	114	0.6	48	0.26
Lime Shell	Th.T	158	1.9	154	1.8	143	1.9	109	1.3	116	1.3	37	0.4
Calcareous Sand	Th.T	740	1.4	537	2.3	147	0.7	260	0.1	117	0.7	—	—
Magnesite	Th.T	421	15	460	18	430	18	506	19	513	19.0	151	6.9
Mica (Crude)	Th.T	4.8	2.6	4.7	2.8	4.3	2.6	3.7	2.0	4.1	2.3	1.1	0.8
Pyrites	Th.T	17	0.7	22	0.6	36	0.9	30	0.9	32	1.0	14	0.6
Steatite	Th.T	359	4.9	379	5.3	371	6.4	385	5.0	403	6.0	133	2.3
Other Major Min.	(Value)		17.8		17.3		17.3[5]		17.3[5]		21.1		6.2
Minor Minerals	(Value)		474		495		686		686[5]		686[5]		172[5]

MT – Million tonnes; Th.T – Thousand tonnes; Th.CAR – Thousand Carat; CCM – Crore cubic metre; K G – Kilogram.

1. Relates to gas utilised.
2. Excludes production of fireclay if any, recovered incidental to coal mining fireclay.
3. Comprises recorded figures up to August 1989 and estimated for September-December 1989.
4. Estimated.
5. Previous year's figures repeated, current data not being available

TABLE 20.10 PRODUCTION OF NON-FERROUS METALS

(Tonne)

Metal	1985-86	1986-87	1987-88	1988-89	1989-90[1]
1. Aluminium	2,64,826	2,57,269	2,77,786	3,57,343	4,35,000
2. Copper[2]	43,842	44,563	42,134	52,410	50,500
3. Zinc	72,797	76,366	60,557	73,370	81,000
4. Lead	26,437	30,140	32,290	32,300	40,500
5. Gold[4]	1,875	1,811	1,874	1,954	1039[3]

1. Anticipated.
2. Includes toll melting.
3. Anticipated figures up to October 1989.
4. Quantity in kilogram.

mines in Himalayan areas containing copper, zinc and lead sulphides which is treated in its beneficiation plant for production of copper, lead and zinc concentrates. Copper concentrates are sold to Hindustan Copper Ltd., and Zinc concentrates to Hindustan Zinc Ltd., for processing in their smelters.

MINERAL AND METAL PRODUCTION

Production of important minerals during the last five years is given in table 20.9. Production of important non-ferrous metals during the last four years and current year is shown in table 20.10.

Not only self-sufficiency was achieved in aluminium in 1988-89, but there was surplus enabling exports of 1,800 tonnes in 1988–89 and 30,000 tonnes (targetted) in 1989-90 from NALCO. Demand satisfaction by indigenous production in 1989-90 in copper is about 34 per cent, zinc about 58 per cent and lead about 56 per cent, thus necessitating substantial imports.

VILLAGE AND SMALL INDUSTRIES

Modern small scale industries and unorganised traditional industries are known as village and small industries (VSI). VSI sector is divided into eight sub-sectors. Small scale industries and powerlooms represent modern small industries and khadi, village industries, handlooms, sericulture, handicrafts and coir represent the traditional industries.

Development of small scale industries has been given high priority in successive Five Year Plans in view of its advantages in terms of low investment and high potential for employment generation in rural and semi-urban areas. Importance of this sector has been further highlighted by its inclusion in 20-Point Programme which lays emphasis on handicrafts, handlooms, small and village industries and gives them all facilities to grow and to update their technology.

Small scale industries have grown phenomenally during the last decade and the sector today occupies a position of unique importance in the economy of the country. Village and small scale industries taken together account for about 49 per cent of total industrial production and contribution of industries falling under the purview of small industries development organisation is about 35 per cent.

Investment limit in the definition of small scale industries has since been revised upward in 1985 from Rs 20 lakh investment in plant and machinery to Rs 35 lakh and in case of ancillary units from Rs 25 lakh to Rs 45 lakh. This limit to has been further raised to Rs 60 lakh and Rs 75 lakh respectively from 31 May 1990.

Considering the significant role of small scale sector in meeting demand for products both in domestic and international markets and for enabling the sector to maintain its tempo of performance, items of plant and mechinery which comtribute to modernisation of SSI units *viz.*, pollution control equipment and pure R and D equipment have been excluded from computation of the present ceiling of plant and machinery in case of small scale industrial undertakings and ancillary industrial undertakings. Furthermore, all service-oriented enterprises other than those engaged in a purely trading/commercial activity continue to be eligible to be registered as small scale service establishments provided these are set up in rural areas and towns with a population of five lakh or less subject to a ceiling on investment in plant and mechinery of Rs 2 lakh. On being so registered they would be entitled to same concessions and incentives as are available to small scale industries.

State Industry Ministers' Conference held in July 1989 discussed strategy for rural industrialisation. Some important decisions taken were: (i) rural industrialisation should form the main thrust of strategy for industrialisation and rural employment in Eighth Plan; (ii) coverage should be increased from 2 lakh to 3.5 lakh villages during the Plan; (iii) state governments should adopt cluster approach wherever necessary and feasible and take necessary steps to increase the number of industries promoted in khadi and village industry sector; (iv) states should provide adequate funds in their plans for this sector, and (v) steps should be taken to strengthen khadi and village industries boards. As a major policy initiative to give further boost to small, village and agro-based industries, Government has decided to set up a new Department for Small Scale, Agro and Rural Industries. It will help strengthen the existing support system for promotion of small scale and village industries.

HANDICRAFTS

Handicrafts constitute an important cottage industry of the country and provides employment to about 35 lakh artisans. A large number of handicrafts artisans belong to weaker sections. Handicrafts comprise a wide range of artistic products, woollen carpets and druggets, art metalwares, hand printed textiles, woodwares, *zari*, ivory products, etc. These are principal items of handicrafts which earn foreign exchange. During 1986-87 and 1987-88, value of exports of handicrafts (excluding gems and jewellerv) was Rs 415.47 crore and Rs 540.94 crore respectively which shows an increase of 30 per cent over the previous year. However, there was an increase of about 40 per cent during 1988-89 over 1987-88.

Seventh Plan envisaged Rs 60 crore for the development of handicrafts. Annual plan of handicrafts for 1989-90 in Central sector had been approved for Rs 15.75 crore representing an increase of 40 per cent over the previous year. Main objective of Eighth Plan would be to enhance opportunities of employment and income from crafts as an economic activity and sustaining it by market both domestic and overseas.

SMALL INDUSTRIES DEVELOPMENT ORGANISATION

Small Industries Development Organisation (SIDO) provides a comprehensive range of consultancy services and technical, managerial, economic, *statistical, and marketing* assistance to small scale units through its network *of 27 small industries services institutes (SISIs)*. 31 branch SISIs, 37 extension centres, four *regional* testing *centres and* three process-cum product development centres. SIDO has recently launched various technology support programmes for benefit of small scale industries in the country through a number of steps undertaken such as establishment of: (a) process-cum-product development centre. (b) tool rooms and training centres; (c) specialised institutions, *i.e.*, electrical measuring instruments, tools, designs, and (d) regional testing centres with its field-testing stations.

There are three process-cum-product development centres (PPDCs) for glass and ceramics at Ranchi, sports goods and leisure-time equipment at Meerut and foundry and forge technology at Agra (with UNDP assistance). These PPDCs are rendering technical testing facilities for process and products to be developed Four new PPDCs and eight new tool rooms are proposed to be set up during Eighth Plan.

Tool room and training centre at Calcutta and Central tool room at Ludhiana have been set up with the assistance of Denmark and Federal Republic of Germany respectively. Central institute of tool designs at Hyderabad and Central institute of hand tool, Jalandhar have been established under UNDP assistance. These centres are providing consultancy services to engineering industry on production, process and standarisation of components, tools, etc., and also provide facilities for design and manufacture of high quality precision tools, jigs and fixtures, guages, heat treatment, etc., to industry. These centres also impart training for improving skills in tool-designing and tool-making to workers and supervisory staff of small scale units.

An agreement has been signed recently between FRG and India for setting up of three tool rooms at Aurangabad, Ahmadabad and Indore. Another agreement has been signed with Denmark for establishing tool rooms at Bhubaneshwar and Jamshedpur under Central assistance and a tool room at Mysore under Karnataka government.

Four regional testing centres (RTC) at Calcutta, Delhi, Bombay and Madras have been established for testing raw materials and finished products for small scale industries as per ISI/International Standards in mechanical, metallurgy, chemical and electircal disciplines. In addition, 20 field testing stations (FTS) have also been sanctioned at places of concentration of industries (one in each state) for testing of products of small scale units for improving their quality. Of these, 19 FTSs have been established including one at Goa which has been transferred to the state govenrnment on its request.

CREDIT FACILITIES

Credit provided by banks to small scale industries is treated as credit to 'priority sector'. Commercial banks are required to lend 40 per cent of their total loans to priority sector of which 15 to 16 per cent is required to be in the form of direct agricultural advances and the rest can be to small scale industry, small business, small transport operators, indirect agricultural loans, etc. As at the end of December 1988 public sector bank credits to small scale industrial sector formed 17.1 per cent of net bank credit, amounting to Rs 12,309 crore.

Share of the small scale sector in the total outstanding loans of the priority sector at the end of December 1988 was 37 8 per cent. Number of small scale units/borrowers assisted by public sector banks at the end of December 1988 was 25.98 lakh and the amount of outstanding loans to small scale sector Rs 12,309 crore. Amount of financial assistance sanctioned by state financial corporations to small scale industries was Rs 892 crore and amount disbursed Rs 689 crore during 1987-88.

DISTRICT INDUSTRIES CENTRES

Centrally-sponsored District Industries Centres (DICs) programme (launched in 1978) provides a focal point at district level for promotion of small, tiny village and cottage industries, widely dispersed in rural and semi-urban areas and aims at providing all essential services and support as far as practicable at pre-investment, investment and post-investment stages at district level. Main thrust of this programme is on development of such industrial units in rural areas and small towns to create larger employment opportunities in those areas.

DIC programme continued during Seventh Plan and share of Central government was raised to rupees four lakh per DIC per year from April 1985. During 1987-88, 4.76 lakh small and artisan-based units have been established in the country providing additional employment opportunities to 11.85 lakh persons.

Total number of approved DICs now stands at 422 which covers 431 districts. Four metropolitan cities are outside the purview of this programme.

SELF-EMPLOYMENT FOR EDUCATED UNEMPLOYED YOUTH

Recognising the important role of district industries centre (DIC) as a nodal agency for implementation of industrial development programme, a new scheme announced by Government for providing self-employment opportunities to educated unemployed youth has been entrusted to DICs for implementation. Under this scheme, DICs assist educated unemployed youth, falling in the age group 18-35 and having passed matriculation and above including ITI pass to get self-employment through industry, service and small business routes. A task force has been constituted in each district under DIC consisting of representatives of lead bank, SISI, DIC, two leading banks and district employment officer to identify the beneficiaries. Identified beneficiaries are entitled to get a composite loan up to Rs 15,000, Rs 25,000 and Rs 35,000 for business, service and industrial venture respectively. Rate of interest on the loan is 10 per cent per annum in backward areas and 12 per cent per annum in other areas. Assistance from Government is in the shape of an outright capital subsidy to the extent of

25 per cent of the loan contracted by the entrepreneur from the bank. Subsidy is released to banks after disbursement of the loan which is to be kept as fixed deposit in the name of the borrower. After recovery of 3/4 of the loan, balance of 1/4 is to be adjusted by banks against deposits in the name of the borrower.

The scheme was extended during 1984-85 with modification that a minimum of 50 per cent should be through industry route and not more than 30 per cent cases should be sanctioned for small business. In hilly areas, ceiling for industry has been reduced to 30 per cent and no upper ceiling for business is enforced.

From 1986-87, 30 per cent of the cases are reserved for SC/ST. ITI passed unemployed youth have also been made eligible to get benefit of the scheme for industrial and service ventures.

DIC task force was also expanded by inclusion of two more leading bankers of the district. The scheme was implemented during Seventh Plan period. In 1988-89, 1.92 lakh beneficiaries were advanced loans by banks worth Rs 404.07 crore.

CENTRAL PLAN SCHEME OF SECOND ALL INDIA CENSUS OF REGISTERED SMALL SCALE INDUSTRIAL UNITS

Development Commissioner, Small Scale Industries (DCSSI) has launched the second All-India census of small scale industrial units registered with states/UTs. During the census, it is expected to cover about 10 lakh such units producing a wide range of consumer goods, producer goods, ancillaries and components. Primary objective of the census is to collect from small scale units basic information like investment, employment, capacity, production, export, etc., which will help in building up a data base relating to industries in this sector. Scheme is being implemented with active participation of states/UTs, directorates of industries and field offices of Small Industries Service Institutes.

Actual field work of the census has commenced in most states/UTs from July-August 1989. By November 1989 while census field work had already been completed in Sikkim, Arunachal Pradesh and Mizoram, nearly 20 per cent of the units (aggregate basis) had been covered in remaining states/UTs

NIESBUD

A National Board for Entrepreneurial Development and National Institute for Entrepreneurship and Small Business Development (NIESBUD) were established in 1983 for laying down policies, reviewing programmes and coordinating activities and programmes of various agencies in the field of entrepreneurship development of different target groups. The Institute has been organising and conducting training programmes for motivators, trainers and entrepreneurs, preparing model syllabus of training of various groups of entrepreneurs, holding examinations and tests, undertaking documentation and research and conducting seminars, workshops and conferences, etc., for officers/ motivators in the field of entrepreneurial and business development. The Institute, as an apex national level institute, has been serving as a forum for interaction and exchange of views on EDPs.

NSIC

National Small Industries Corporation Ltd. (NSIC) set up in 1955, supplies machinery to small scale units on hire-purchase basis and assists them in procuring orders from government departments and offices. It also helps small scale units in procurement of scarce and imported raw materials and marketing their products at home and abroad. NSIC exports turn-key projects to other developing countries of the world. In addition, the Corporation imparts training in several technical trades in its prototype development-cum-training centres (PDTCs) at Okhla (New Delhi), Howarah, Rajkot and Madras These PDTCs also develop prototypes of machines and equipment and transfer these to small scale units for commercial production.

NATIONAL AWARDS

Government has introduced a scheme since 1983 for giving national awards annually for recognising and promoting entrepreneurship in small scale sector. The first three all-India awards carry a cash prize of Rs 25,000, Rs 20,000, and Rs 15,000 respectively. A special recognition award of Rs 10,000 is being conferred on the entrepreneur in small scale industries in each state/union territory in recognition of outstanding performance in this sector. A new scheme has been introduced from 1986-87 for small scale units for quality production of goods from out of selected industry products groups. The awards carry cash prizes of Rs 15,000 and Rs 10,000 (for first and second), a trophy and a citation.

SICK INDUSTRIES

Policy framework in respect of measures to deal with problem of industrial sickness has been laid down in the guidelines issued in October 1981, (which were subsequently modified in February 1982) for guidance of administrative ministries of the Central government, state governments and financial institutions. Salient features of these guidelines are as under: (i) administrative ministries in Government will have specific responsibility for prevention and remedial action in relation to sickness in industrial sector within their respective charge. They will have a central role in monitoring sickness and cordinating action for revival and rehabilitation of sick units. In suitable cases, they will also establish standing committees for major industrial sectors where sickness is widespread; (ii) financial institutions will strengthen monitoring system so that it is possible to take timely corrective action to prevent incipient sickness. They will obtain periodical returns from assisted units and from directors nominated by them on the boards of such units. These will be analysed by Industrial

Development Bank and results of analysis conveyed to financial institutions concerned and Government; (iii) financial institutions and banks will initiate necessary corrective action for sick or incipient sick units based on a diagnostic study. In case of growing sickness,financial institutions will also consider assumption of management responsibility where they are confident of restoring a unit to health. Ministry of Finance will issue suitable guidelines for takeover of management; (iv) where banks and financial institutions are unable to prevent sickness or ensure revival of a sick unit, they will deal with their outstanding dues to the unit in accordance with normal banking procedures. However, before doing so, they will report the matter to Government who will decide whether the unit should be nationalised or whether any other alternative including workers' participation in management can revive the undertaking; (v) where it is decided to nationalise the undertaking, its management may be taken over under the provisions of the Industries (Development and Regulation) Act, 1951, for a period of six months to enable Government to take necesesary steps for nationalisation, and (vi) industrial undertakings presently being managed under the provisions of the Industries (Development and Regulation) Act, 1951,will also be dealt with, in accordance with the above principles.

CONCESSIONS

Government has also provided certain concessions to assist revival of sick units without direct intervention. These are. (i) Government had amended the Income Tax Act in 1977 by addition of Section 72A by which tax benefit can be given to healthy units when they take over sick units by amalgamation with a view to reviving them. Tax benefit is in the form of carry forward of the accumulated business losses and un-provided depreciation of sick companies by healthy companies after amalgamation; (ii) a scheme for provisions of margin money to sick units in small scale sector at soft terms to enable them to obtain necessary funds from banks and financial institutions to implement their revival has been introduced from 1 January 1982. The limit of the scheme has now been raised from Rs 20,000 to Rs 50,000 (iii) Small Scale Industries Development Fund set up by IDBI in May 1986 provides for rehabilitation assistance to sick SSI units financed by commercial banks, state financial corporations and state SIDCs, and (iv) financial assistance is also available to potentially viable sick SSI units from the National Equity Fund set up in IDBI in August 1987.

The Sick Industrial Companies (Special Provisions) Act, 1985 has been enacted. It provides *inter-alia,* for timely identification of sick and potentially sick units. In pursuance of this Act, a quasi-judicial body known as Board for Industrial and Financial Reconstruction (BIFR) has been constituted and it has become fully operational from 15 May 1985. This step would help in detecting, preventing as well as taking ameliorative, remedial and such other measures with respect to sick and potentially viable units.

In order to improve monitoring of borrowal accounts by banks, RBI has introduced a system called Health Code System for categorising borrowal accounts according to health and quality of these accounts in commercial banks. The System helps in detecting the health of assisted units by concerned banks so as to enable them to take appropriate action on case-to-case basis.

Reserve Bank of India has set up a special cell as a clearing house for information and also to act as coordinating agency between Government, banks, financial institutions and other agencies. It has issued guidelines for detection and remedial steps to be taken in respect of sick units. State level inter-institutional committees have been set up to render assistance to sick units in a coordinated manner. Banks and financial institutions prepare rehabilitation schemes on the basis of diagnostic studies providing, *inter-alia*, for reconstruction of capital, funding of interest liabilities, capital and working capital loans on soft terms, management support, relief or re-scheduling of debt service liabilities, etc. Assistance is also available under Technical Development Fund and for import of capital goods for modernisation and replacement of obsolete plant and machinery. Government has also set up Textile Modernisation Fund and Jute Modernisation Fund in textile and jute sectors, under which weak and sick but potentially viable units can avail of assistance. Central/state governments provide fiscal and other reliefs and concessions when any industry shows signs of strain. These are in the form of excise duty relief, relaxation of control orders (as in case of paper and cement), soft loan scheme for modernisation/ diversification, liberal import facilities for import of raw materials, selective tariff protection, sales tax relief and relief on electricity charges, etc.

Small Industries Development Bank of India has been established to function as an apex bank for tiny and small scale industries. This Bank will function as the principal financial institution for promotion, financing and development of industrial concerns in small scale sector and shall also coordinate functions of institutions engaged in promoting, financing and developing industrial concerns in small scale sector. Authorised capital of this Bank will be Rs 250 crore to be subscribed by IDBI.

An excise relief scheme for weak units has also been announced. Salient features of the scheme are as follows: (i) the scheme would apply to any unit in which 50 per cent or more of the maximum net worth in any of the previous five accounting years has been eroded by accumulated losses; (ii) the unit should have a rehabilitation, modernisation or diversification package approved by a designated financial institution. The package may include capital expenditure, working capital margins, labour rationalisation costs, technology acquisition payments, financial restructuring, repayment of term loans and such other items as are directly relevant for purposes of rehabilitation and modernisation or diversification; (iii) the eligible unit would be entitled to an interest free loan with a grace period of three years and repayable over seven years amounting to 50 per cent of its actual excise payments for three years subsequent to the approval of the scheme. Total amount given by way of such 'excise loans' will not exceed 25 per cent of the overall cost of rehabilitation/modernisation/diversification package, and (iv) the 'excise loans' will be released to units through designated financial institutions.

TECHNICAL DEVELOPMENT

Directorate General of Technical Development (DGTD), a part of the Ministry of Industry, is the principal technical advisory organisation of government on matters relating to industrial development of the country. Headed by Secretary (TD) and DG (TD), DGTD has three functional wings, *viz.*, Engineering Industries Division, Chemical Industries Division and Management Wing.

There are 27 directorates, each headed by an industrial adviser/ additional industrial adviser. Taking into account the need for decentralisation and for reaching industries, regional offices have been opened since 1979. There are at present five regional offices at Madras, Calcutta, Hyderabad, Lucknow and Bombay—headed by an industrial adviser. Lucknow, Madras and Bombay regional offices have a camp office in Bhopal, Bangalore and Ahmadabad respectively.

Functions of DGTD are three-fold: advisory, developmental and regulatory. Advisory functions include advice to various Central ministries, departments and organisations on one hand and industry, both in public and private sector, on the other hand on all aspects of industrial development.

Main areas covered are: scrutiny of applications for industrial license/ registration, proposals for foreign collaboration and import of capital goods. DGTD is fully associated with concerned ministries/departments in formulation of industrial development plans/import/export/fiscal policies. DGTD extends entrepreneurial guidance for setting up industries. On developmental front, DGTD maintains close coordination with the Planning Commission for determining sectoral priorities and allocation of Plan funds. It guides the working of development councils set up under the I(D and R) Act and is associated with various scientific and technical organisations. It is the focal point for choice of technologies, setting up of R and D facilities, absorption and assimilation of imported technology and equipment. Regulatory functions of DGTD largely emanate from the ultimate object of achieving self-reliance through planned and balanced growth of industry.

DGTD is the technical authority for registration of industrial undertakings engaged in manufacture of non-scheduled inventories and those employing less than 50 workers provided the location and other parameters of registrations are satisfied. MRTP/FERA companies are also eligible for registration with DGTD in respect of items delicensed for MRTP/FERA companies, subject to fulfilment of stipulated conditions.

During 1987 and 1988, 1,204 and 836 schemes respectively were registered. Of these, share of backward areas was 651 schemes in 1987 and 496 schemes in 1988. Major thrust of industires in 1988 was towards plastic and polymer industries, for which 175 units were registered followed by drugs and pharmaceuticals (97 units). In terms of regional distribution in 1987, the largest share goes to Maharashtra (126 units) followed by Andhra Pradesh (115 units).

Although a wide range of industries fall under DGTD, production of 253 selected industries is reflected in the index of industrial production (IIP) compiled by CSO. Total weight of these industries is about 47 per cent in IIP (base 1980-81). Production of DGTD industries is accounted for in IIP for manufacturing sector along with production in other sectors such as steel, textiles, jute, sugar, vanaspati, etc. Growth percentage of manufacturing sector as also overall IIP is mentioned below:-

	Growth Rate (Percentage)	
	1987-88	1988-89
Manufacturing	8.2	8.9
Overall	7 5	8.8

21 Commerce

INDIA has trade links with practically all countries of the world. Exports cover over 7,500 commodities to about 180 countries while imports from about 135 countries account for over 6,800 commodities. From April 1987 onwards, India adopted Customs Cooperation Council's harmonised commodity description and coding system for its trade classification with suitable extension to meet domestic needs by which it is now possible to record trade information at a much more disaggregated commodity levels. Exports cover wide range of items of agricultural and industrial sectors and various handicrafts, handloom, cottage and craft articles. Project exports which include consultancy, civil construction and turn-key contracts have also made a significant progress in recent years.

Similarly, there has been a substantial increase in imports on account of development and needs of economy. Bulk of imports comprises sophisticated machines, scarce raw materials, lubricants, oils and fertilisers essential for industrial and agricultural development. In the last few years, the country has been having a large adverse balance of trade on account of heavy imports on one hand and steep hike in global prices of major imports on the other.

VALUE OF FOREIGN TRADE

Total turnover of foreign trade (imports plus exports including re-exports) has been steadily rising since the beginning of the planning era in India. Value of trade increased considerably from 1950-51 to 1987-88. Value of imports, exports, total trade and balance of trade for selected years since 1950-51 is given in table 21.1.

Foreign trade situation showed a distinct improvement in recent years.

TABLE 21.1 FOREIGN·TRADE OF INDIA

(Rs crore)

Year	Imports	Exports	Total value of foreign trade	Balance of trade
1950-51	608.04	606.10	1,314.14	-1.94
1960-61	1,121 62	642.39	1,764.01	-479.23
1970-71	1,634.20	1,535.16	3,169.36	-99.04
1980-81	12,549.15	6,710.71	19,259.86	-5,838.44
1981-82	13,607.55	7,805.91	21,413.46	-5,801.64
1982-83	14,292.74	8,803.36	23,096.11	-5,489.38

TABLE 21.1 (*Continued*)

1983-84	15,831 46	9,770 71	25,602 17	-6,060.75
1984-85	17,134 20	11,743 68	28,877 88	-5,390.52
1985-86	19,657.69	10,894 59	30 552 28	-8,763 10
1986-87	20,095 76	12,451 95	32,547 71	-7,643 81
1987-88[1]	22,398 97	15,741 23	38,140 20	-6,657.74
1988-89[1]	28,193 65	20,295.15	48,488 80	-7,898 50
1989-90[2] (April- December)	24,773 30	19,254 85	44,028 15	-5,518 45

[1] Partially revised estimates

[2] Provisional

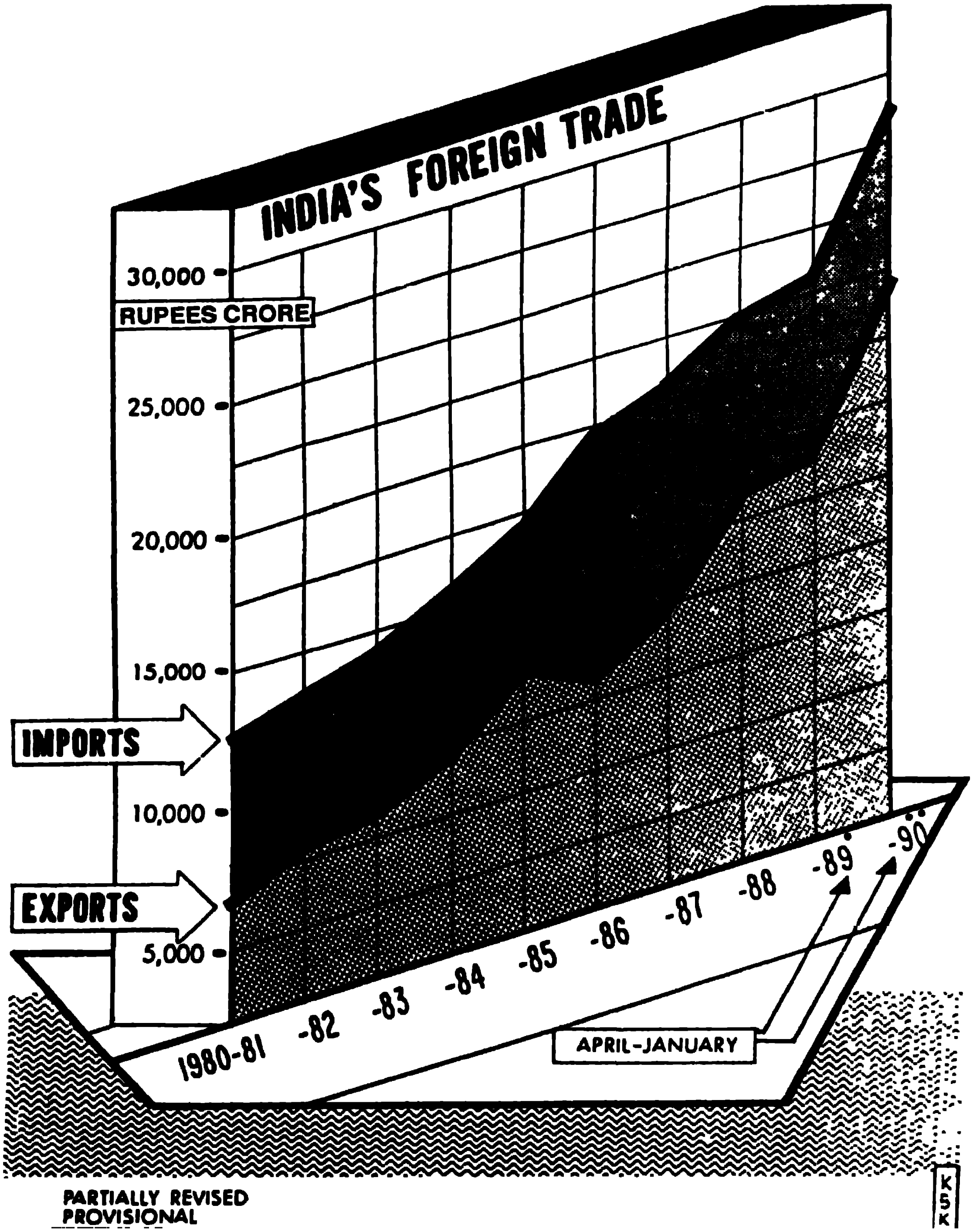
Source: DGCI&S, Calcutta

There had been significant export growth during Seventh Plan. Beginning with a decline of 7.2 per cent in 1985-86, export growth picked up to 14.3 per cent in 1986-87, 26.4 per cent in 1987-88 and further to 28.9 per cent in 1988-89 and around 38 per cent in 1989-90. Imports on the other hand had shown a mixed trend. Import growth decelerated from 14.7 per cent in 1985-86 to 2.2 per cent in 1986-87 but increased to 10.7 per cent in 1987-88, to 26.7 per cent in 1988-89 and to 29.4 per cent in April-October 1989. Sharp jump in 1988-89 is attributable to increased imports of essential commodities such as foodgrains and edible oils, necessitated by drought, increased import intensity for exports due to a shift in composition of exports in favour of manufactured products; small rise in inessential imports mainly in the form of parts and components for luxury consumer durables; high international prices of metals and edible oils and exchange rate variation. As a result trade deficit came down from Rs 8,763 crore in 1985-86 to Rs 7,644 crore in 1986-87 and further to Rs 6,503 crore in 1987-88, but increased to Rs 7,899 crore in 1988-89.

To ameliorate acute balance of payments position, Government is in the process of fixing an export target for 1990-91 envisaging growth rate of 40 per cent over this year's anticipated export earnings. For this an action plan has been drawn to make the present system of pre-shipment inspection and quality control for exports more effective and meaningful as quality of products plays vital role in export market. In this direction adoption of the ISO 9000 international standards for quality assurance is required so as to overcome various challenges facing exports. Unless this is done, India will not be able to increase its share of EEC market compared to other developed countries like UK, USA and Japan which have adopted this system since its introduction in 1987 besides 40 other countries having adopted 150 standards as their corresponding national standards with minor modifications.

IMPORT-EXPORT POLICY 1990-93

New Import-Export Policy was announced on 30 March 1990. It will be effective for three years from 1 April 1990 to 31 March 1993. Open general licences have also been issued with validity up to this date. Main objectives


INDIA'S FOREIGN TRADE
30,000
RUPEES CRORE
25,000
20,000
15,000
IMPORTS
10,000
EXPORTS
5,000
1980-81
-82
-83
-84
-85
-86
-87
-88
-89*
-90**
APRIL-JANUARY
* PARTIALLY REVISED
** PROVISIONAL
KSK

of the Policy are to: (i) encourage rapid and sustained export growth including export of services with special emphasis on exports which generate higher net foreign exchange earnings; (ii) facilitate availability of necessary imported inputs for sustaining industrial growth including essential imported capital goods for modernisation and technological upgradation; (iii) simplify and streamline procedures for import licensing and export promotion; (iv) support recognised indigenous R and D institutions for building up their scientific and technological capability for technology absorption and development, and (v) promote efficient import substitution and self-reliance.

Several additional measures have been announced to increase exports by making them more attractive and viable. Scope of export products qualifing for import replenishment has also been widened. This is to meet requirements of machinery for modernisation and technological upgradation and also requirements for export production.

Research and Development units recognised by Department of Science and Technology/Department of Scientific and Industrial Research as well as scientific or research laboratories, institutions of higher education and hospitals recognised by Central or state governments will be eligible to import machinery, equipment, instruments, raw materials, components, consumables, accessories, tools and spares under Open General Licence.

Non-resident Indians/persons of Indian origin will continue to have special facilities for import of capital goods, raw materials, components and consumables required for setting up of an industrial unit or participation in expansion/diversification of an existing unit in conformity with the industrial policy of Government.

One of the main features of the new Policy is a simplified import replenishment licensing scheme. Under the new scheme, exporters are entitled to get import replenishment licences to replenish raw materials, components, consumables and packing materials used in manufacture of products exported, so long as such inputs are in Appendices 3 and 5 A of the Policy. This would give greater flexibility to exporters in the import of required inputs on the basis of international marketing requirements. In case of certain identified export products, import of inputs that are otherwise restrictive and also sensitive in nature, will be allowed, to a limited extent, in the interest of export promotion.

To permit diversification of production base and also to expose indigenous industry to international competition so that indigenous industry becomes both qualitatively and pricewise competitive internationally, REP Licences have been made totally flexible for import of raw materials and components listed in Appendices 3 and 5 A of the Policy.

Export policy has further been simplified and made more transparent. Requirement of bank guarantee for export of ceiling items has been dispensed with. Powers are being delegated for first time to regional offices for revalidating export licences related to ceiling items.

Suitable instructions have been given to all licensing offices (Chief Controller of Imports and Exports (CCIE) and its 27 regional offices) to ensure that requirements of bonafide exporters and actual users are met efficiently, and also misuse of provisions by unscrupulous elements curbed. They are to hold monthly grievance committee meetings every third wednesday on regular basis. Outstation parties will be given precedence over others so that they are not forced to stay an extra day. Counter assistance will now be compulsorily set up in all regional offices to point out and correct deficiencies then and there before submission of applications. To curb misuse of Policy provisions applications for importer-exporter code numbers will be scrutinised by an inter-departmental screening committee to weed out bogus applications. Chief Controller of Imports and Exports will hereafter monitor cases through a network of FAX and Telex links with all offices headed by Joint Chief Controllers of Imports and Exports. Even public can now take advantage of FAX machines in regional offices for their immediate and urgent requirements.

DIRECTION OF EXTERNAL TRADE

India is having export and import trade with all regions of the world, developing and developed. Economic and trade relations are being developed through bilateral negotiations and various promotional activities.

Direction of India's exports and imports from different regions/subregions is outlined in table 21.2.

During 1988-89, Asia and Oceania accounting for 32.4 per cent of India's total exports, constituted the largest market for Indian goods, followed by West Europe at 27.7 per cent, America at 20.5 per cent, East Europe at 17.0 per cent and Africa at 2.5 per cent.

United States, Japan and Soviet Union continued to remain on top as India's three major trading partners during 1988-89. India's total trade turnover with USA during this period was Rs 6,933 crore comprising exports worth Rs 3,736 crore and imports worth Rs 3,197 crore. Total trade with Japan was worth Rs 4,796 crore (exports Rs 2,162 crore and imports Rs 2,634 crore). With Soviet Union, total trade turnover was Rs 3,867 crore (exports Rs 2,689 crore and imports Rs 1,258 crore). Besides these three major trading partners, other important markets for Indian goods include Federal Republic of Germany, United Kingdom, Belgium, France, Italy and the Netherlands among ECM countries; Saudi Arabia, UAE and Kuwait in West Asia region, and Hong Kong, Malaysia, Singapore and Australia in ESCAP region.

EXPORTS

Exports have not only grown appreciably, but have also witnessed an increasing diversification over the years. The increase has been well spread over a number of commodities such as capital goods and other engineering items, chemicals and chemical products, leather and leather manufactures, garments, cotton fabrics, rayon and woollen textiles, gems and jewellery, handicrafts, hand-made carpets, processed foods and marine products. Emphasis has also been laid on exports of traditional items such as agricultural items (mainly cereals), ores and minerals and plantation crops. Exports by processed food industries during 1988-89 were Rs 961.85 crore comprising processed food exports of Rs 182 crore and seafood exports of Rs 779.85 crore. Total exports in 1987-88 were Rs 676.24 crore comprising processed food exports of Rs 145.04 crore and seafood exports of Rs 531.20 crore.

Export earnings from agricultural sector are expected to exceed Rs 2,500 crore during 1989-90 as against over Rs 1.990 in 1988-89. This figure excludes tea and Coffee. Total exports during April-February 1989-90 amounted to about Rs 24.506 crore compared to about Rs 17.876 crore during the same period in 1988-89, showing a growth rate of 37.1 per cent.

Several measures are being taken to boost exports from processed food sector. These include cash compensatory support, duty drawback, setting up of cent per cent export-oriented units, etc. A number of schemes for development of marine products industry, which is highly export-oriented, have also been formulated.

TABLE 21.2 DIRECTION OF INDIA'S FOREIGN TRADE

(Rs crore)

Region/sub-regions		EXPORTS		IMPORTS	
		1987-88[1]	1988-89[1]	1987-88[1]	1988-89[1]
A	WEST EUROPE	4,362.85	5,473.31	8,406.85	10,113.15
	(a) European Common Market	3,957.30	4,945.60	7,459.11	9,021.55
	(b) European Free Trade Area countries	365.03	450.65	827.30	847.63
	(c) Other West Europe	40.52	77.06	120.44	243.97
B	ASIA AND OCEANIA	4,612.42	6,411.77	8,639.98	10,879.31
C.	AFRICA	384.29	497 17	687.37	1,016.23
D.	AMERICA	3,123.82	4,052.49	2,868.93	4,229.26
	(a) North America	3,078.04	3,933.50	2,330.56	3,623.46
	(b) South America	15.26	69.78	450.23	519.21
	(c) Other America	30.52	49.21	88.14	86.59
E.	EAST EUROPE	2,593.48	3,356.30	1,795.84	1,947.19
	Grand Total (A+B+C+D+E)	15,741.23	20,295 15	22,398.97	28,193.65

1. Provisional.

Source: DGCI&S., Calcutta.

In dynamic sectors, exports of gems and jewellery rose from Rs 44 crore in 1971-72 to Rs 4,399 crore in 1988-89 and Rs 5,469 crore in 1989-90 (likely to reach Rs 7,000 crore in 1990-91), readymade garments from Rs 14 crore to Rs 2,098 crore, engineering goods from Rs 122 crore to Rs 2,322 crore, leather and leather manufactures from Rs 102 crore to Rs 1,490 crore, chemicals and related products from Rs 30 crore to Rs 1,534 crore and marine products from Rs 41 crore to Rs 633 crore. Export performance of principal commodities during 1988-89 as compared to 1987-88 is shown in table 21.3.

IMPORTS

Major items of imports which registered an increase during 1988-89 include pearls, precious and semi-precious stones (by Rs 1,181 crore), organic and inorganic chemicals (by Rs 889 crore), iron and steel (by Rs 664 crore), capital goods (by Rs 655 crore) and cereal and cereal preparations (by Rs 598 crore). Other items which registered increase are finished fertilisers, pertoleum and petroleum products and non-ferrous metals, items which showed a fall in import include edible oils and cashew nuts.

Efforts have been made to restrict imports only to essential items, to improve balance of trade while taking due care not to adversely affect investment needs of growing economy. Principal imports during 1988-89 as compared to 1987-88, are given in table 21.4.

Imports were valued at Rs 32,044 crore in April-February 1989-90 compared to Rs 25,366 crore during the same period in 1988-89

EXPORT PROMOTION

Government has initiated several institutional, infrastructural and fiscal measures for export promotion . Government seeks to promote exports to the maximum but in such a manner that economy is not affected by unregulated exports of items essentially needed within the country. Export control is, therefore, exercised in respect of limited number of items, supply position of which demands regulation of their exports in larger interests of the country. Export target for 1990-91 has been fixed at Rs 36,000 crore as compared to over Rs 28,000 crore in 1989-90.

Government has recently initiated several steps to improve overall export policy environment. A three-member committee of secretaries comprising finance secretary, industry secretary and commerce secretary has been constituted to deal with inter-ministerial problems affecting exports. A ministerial group comprising ministers of finance, commerce and industry has also been set up to deal with policy issues which can not be resolved by the committee of secretaries. A Cabinet committee on export strategy and performance headed by Prime Minister will periodically review the country's foreign trade performance and emerging constraints.

Cash Compensatory Scheme (CCS) is an important instrument of export promotion. CCS is allowed on a selective basis with a view to compensating exporters (for elements of unrefunded taxes and duties paid on inputs required) for manufacture of goods exported. Duty Drawback Scheme in which exporters are allowed reimbursement of customs and central excise duties paid on raw material components and packaging material used in manufacture of packaging of export products, has been further modified to

TABLE 21.3 EXPORTS BY MAJOR COMMODITY GROUPS

(Rs crore)

Commodity	1987-88[1]	1988-89[1]	Percentage change 1988-89/1987-88	April to September 1988-89[1]	April to September 1989-90[1]	Percentage change April-Sept 1989-90
1. Cashew kernels	306.7	277.2	-9.6	154.0	209.3	35.9
2. Coffee and coffee substitutes	263.2	279.7	6.3	140.9	202.11	43.4
3. Fish and fish preparations	525.11	632.58	20.4	290.63	295.52	1.7
4. Oil cakes	173.28	370.43	113.8	79.77	255.74	220.4
5. Raw cotton	95.49	28.02	-70.7	13.52	68.90	410.4
6. Rice	324.6	331.5	2.1	155.1	297.2	91.6
7. Spices	309.3	250.8	-18.9	155.7	145.0	-6.9
8. Sugar	0.8	7.0	775.0	0.6	24.0	3,900.0
9. Tea and Mate	592.4	599.0	1.1	280.8	383.9	36.7
10. Tobacco	134.6	128.5	4.5	76.2	85.2	11.8
11. Iron ores	542.8	672.5	23.9	282.7	381.1	34.8
12. Engineering goods[2]	1,433.0	2,321.7	62.0	961.8	1,323.2	37.6
13. Chemicals and allied products	823.4	1,534.0	86.3	687.5	898.1	30.6
14. Cotton fabrics	1,063	1,131.3	6.3	503.5	636.0	26.3
15. Jute manufactures	242.8	249.9	2.9	110.2	124.8	13.2
16. Leather and leather manufactures including footwear	1,148.5	1.489.5	29.7	695.6	833.3	19.8
17. Readymade garments	1,792.1	2,097.5	17.0	879.8	1,309.8	48.9
18. Handicrafts	3,253.3	5,194.2	59.7	2,227.4	2,993.0	34.4
Of which.						
Gems and jewellery	2,613.5	4,399.0	68.3	1,845.4	2,530.1	37.1
19. Others	2,716.0	2,700.0	-0.6	1,291.2	1,864.6	44.4
Of which:						
Petroleum products	648.7	505.0	-22.2	253.6	348.6	37.5
20. TOTAL	15,741.2	20,295.2	28.9	8,986.9	12,330.7	37.2

1. Provisional.
2. Includes machinery and transport equipment and metal manufactures including iron and steel

Source: Economic Survey 1989-90

facilitate quicker payments of duty drawback claims. In order to step up export production, large export houses and companies covered under FERA (Foreign Exchange Regulation Act) have been allowed to set up capacities outside the list of industries included in the Appendix of the Industrial Policy of 2 February 1973.

Several steps have been initiated to provide requisite transport facilities for exports. Inland exporters can complete all export formalities and hand over their cargo containers at inland container depots (ICDs) established at Delhi, Bangalore, Coimbatore, Anaparty, Guntur, Guwahati and Ludhiana. These ICDs confer all facilities of dry port as well as facilitate movement of exports and imports by ISO containers. To facilitate small exporters at inland location, another scheme of setting up containers frieght stations (CFSs) has been worked out. These are envisaged as feeding centres of ICDs and ports for container traffic. CFS facilities anticipate arrangement for movement of containers by rail/road to the nearest ICD/port as may be convenient and economical. CFSs have been set up at Patparganj (New Delhi), Madras and Jaipur and steps taken to establish the same at Pune and other places. A specialised Export-Import Bank (EXIM) has been set up to facilitate export finance.

Trade Development Authority (TDA) and Trade Fair Authority (TFA) are engaged in exhibition of Indian products through organisations/ exhibitions in international fairs in different parts of the world.

EXPORT PROCESSING ZONES

Export processing zones have emerged as effective instruments to boost exports of manufactured products, especially to developing countires. The zones are intended to provide an internationally competitive duty-free environment for export production. India has six such export processing zones, four of them developed recently have become operational. These are at Cochin, Madras, Falta and NOIDA. Seventh export processing zone at Vishakhapatnam has been notified and is under implementation stage.

Government also introduced cent per cent export-oriented units scheme from 31 December 1989 in order to have local advantages in production and all facilities of a free trade zone. As on 31 March 1989, 143 units had commenced production and achieved exports worth about Rs 1,134 crore. These units can, with permission of Government on a case-to-case basis, sell up to 25 per cent of their production in domestic tariff area, after paying appropriate duties. This facility is in addition to the one whereby the output of such units is allowed to be sold in domestic market subject to such sales being consistent with import policy in force, after paying duties. Quantum of exports from these zones is given in table 21.5.

SIMPLIFIED EXPORT DOCUMENTATION SYSTEM

The Ministry has worked out details of new export documentation system to facilitate exports through simplification of procedures. Most important

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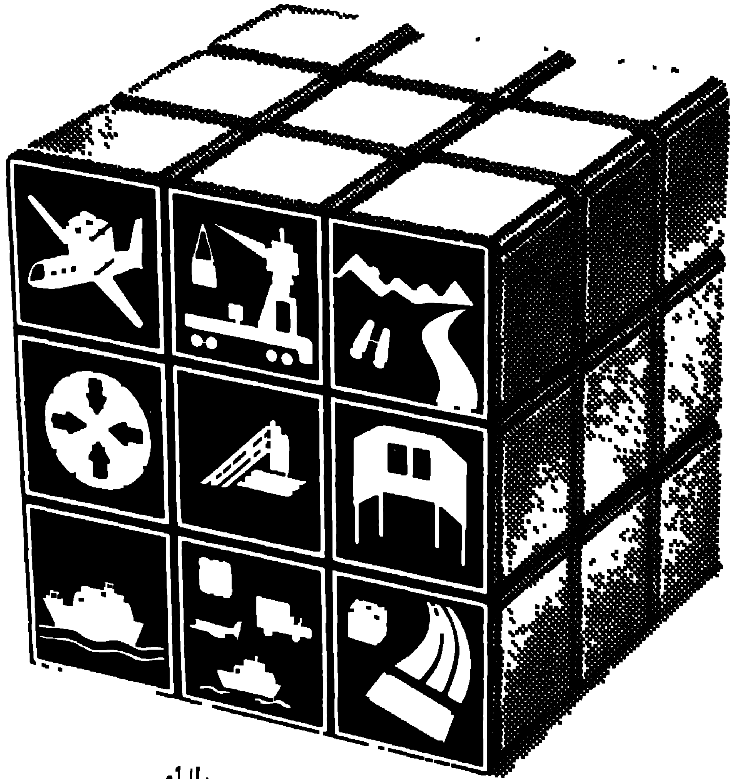

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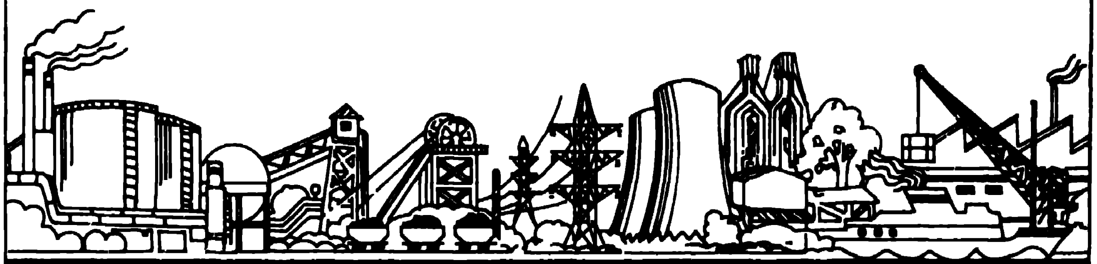

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TABLE 21.4 IMPORTS BY MAJOR COMMODITY GROUPS

(Rs crore)

Commodity	1987-88[2]	1988-89[2]	Percentage change 1988-89/ 1987-88	April to September 1988-89[1]	April to September 1989-90[1]	Percentage change April to September 1989-90/ 1988-89
1 Capital goods[3]	6,284.9	6,938.9	10.4	3,234.1	3,655.2	13.0
2. Cereal and cereal preparations	32.7	630.8	1,829.1	156.6	224.8	43.6
3 Chemical materials and products	173.3	204.1	17.6	89.7	94.1	4.9
4 Edible oils	920.0	727.0	-21.0	510.0	57.5	-88.7
5. Fertilisers crude	138.4	185.1	33.7	69.7	136.4	95.7
6. Fertilisers finished	171.5	493.0	187.5	167.0	625.1	274.3
7. Iron and Steel	1,273.2	1,937.3	52.2	784.3	1,104.3	40.8
8. Medicinal and pharmaceutical products	137.1	202.1	47.4	97.7	110.3	12.9
9. Non-metallic mineral manufactures excluding pearls	83.7	165.8	98.1	70.4	91.9	30.5
10. Non-ferrous metals	576.1	785.8	36.4	396.4	663.2	67.3
11. Organic and inorganic chemicals	1,050.5	1,939.8	84.7	908.0	846.6	- 6.8
12 Paper, paper board and manufactures thereof	258.1	305.7	18.4	139.8	144.9	3.6
13. Pearls, precious and semi-precious stones	1,994.2	3,175.2	59.2	1,536.4	1,981.7	29.0
14. Petroleum, petroleum products and related material (gross)	4,082.8	4,374.0	7.1	2,105.2	2,555.1	21.4
15. Professional, scientific, controlling instruments, photographic optical goods, watches and clocks	490.6	695.7	41.8	307.7	406.7	32.2
16. Synthetic and regenerated fibres	28.4	37.4	31.7	16.8	42.0	150.0
17. Others	4,703.2	5,359.9	14.7	2,574.5	2,721.5	15.7
18. TOTAL	22,399.0	28,193.6	25.9	13,164.3	15,461.3	17.4

1. Provisional
2. Partially revised
3. Includes manufactures of metals, machinery (including electrical machinery), transport equipment and project goods.

Source: Economic Survey 1989-90.

feature of the system is introduction of two master documents for exporters in place of the 25 documents required to be submitted at present to various authorities, with a view to standardising and simplifying documents and aligning them to each other, using as far as possible format of the United Nations Layout Key.

It is estimated that an exporter can save more than 50 per cent of his time and cost on documentational one through this system A Directing Group headed by Union commerce secretary is being set up to ensure effective and speedy implementation of this scheme as well as other export facilitation measures.

TABLE 21.5 EXPORT FROM EXCLUSIVE ZONES

(Rs crore)

	Export Processing Zone	1986-87	1987-88	1988-89	1989-90 April-Dec	No of units
1	Kandla	236 27	185 05	272 00	245 00	112
2	Santacruz	102 36	110 14	245 00	185 00	89
3	Cochin	—	4 88	11 00	8 30	15[1]
4	Madras	—	27 00	51 00	17 76	41
5	Falta	—	8 05	16 00	11 66	9[1]
6	NOIDA	—	23 12	44 44	37 00[3]	45
	Total	338 63	358 24	639 44	604 72	287[2]

1 Units as in January 1990
2 Does not include Cochin and Falta units
3 Up to January 1990

PLANTATION SECTOR

Plantation sector plays an important role in economy as well as in foreign trade. Tea, coffee, tabacco, rubber and cardamom are among important plantation crops.

TEA

India is world's largest producer, consumer and exporter of black tea. During 1988-89, tea prduction was estimated at 70.2 crore kg and was expected to reach 73 crore kg in 1989-90. India is the only producer which manufactures both CTC and Orthodox tea in substantial quantities.

Production of CTC tea is estimated to be 53.5 crore kg, most of which is consumed at home. Orthodox tea has more flavour but gives lesser cuppage.

Country's ninety eight per cent of tea production comes from Assam, West Bengal, Kerala and Tamil Nadu. India has more than doubled its production since independence, mainly by increasing yield through use of improved planting material and optimal use of inputs. Tea is mainly a labour-intensive industry, providing employment to over 10 lakh persons directly and another 10 lakh indirectly by way of ancillary occupations Tea is a major export earner for India. During 1989-90, nearly 20.3 crore kg of tea worth Rs 905 crore was exported. Exports are likely to reach Rs 1,000 crore level in 1990-91.

Tea Board, set up under the Tea Act, 1953 promotes development of tea industry. The Board comprises a chairman and 30 other members representing owners of tea estates, persons employed in tea estates, manufacturers and dealers of tea, consumers, members of Parliament and governments of principal tea growing states.

Tea Trading Corporation of India (TTCI) was established in 1971 to create a suitable export market for Indian tea, particularly in value added form, namely, packaged tea, tea packet, instant tea, etc. Other activities of the Corporation include marketing of tea for domestic consumption, management of tea gardens, warehousing of tea and establishment of other facilities beneficial to tea industry. TTCI has been converted into a subsidiary of State Trading Corporation (STC).

COFFEE

Coffee cultivation is mainly confined to three southern states of Karnataka, Kerala and Tamil Nadu. Non-traditional coffee growing states are Andhra Pradesh, Orissa and all states of north-eastern region. Area under cultivation had increased from 1.71 lakh hectare in 1978 to 2.48 lakh hectare in 1987-88. About 97.8 per cent of coffee holdings are small holdings in less than 10 hectare. Average productivity increased from 452 kg per hectare in 1983-84 to 895 kg per hectare (provisional) in 1987-88. Coffee crop observes cyclic nature of production, wherein peak production season is followed by a lean one. Production of coffee during 1989-90 was estimated to be two lakh tonnes as compared to an estimate of 2.15 lakh tonnes in 1988-89. Exports of coffee during 1988-89 were 98,247 tonnes worth Rs 337.62 crore.

Coffee Board which is responsible for development of coffee industry, has undertaken coffee development plan to improve yield and quality of coffee. For this, it advances loans to coffee growers. Under the Coffee Act, all coffee produced is compulsorily pooled with Coffee Board for sale and disposal. Coffee sales in domestic market are mainly through domestic auctions and reserve price is based on minimum release price. Coffee meant for exports is sold in separate export auctions and reserve price is based on London terminal price. This unique mechanism of coffee pooling and separate auction system for domestic sales and export sales has helped in providing fair returns to growers.

TOBACCO

India is third largest producer of unmanufactured tobacco and largest exporter of tobacco in the world. During 1986-87, production of tobacco was provisionally estimated to be 4.62 lakh tonnes, of which 1.10 lakh tonnes was Virginia tobacco During 1987-88 production of tobacco was provisionally estimated to be 3.59 lakh tonnes, of which 0.64 lakh tonnes was Virginia tobacco. About 80 per cent of tobacoo exports are Virginia Flue Cured (VFC) tobacco. During 1988-89, exports of tobacco and tobacco products were worth Rs 116.66 crore as against Rs 116.30 crore in 1987-88, registering a marginal increase During 1989-90 the exports were worth Rs 172 crore.

Tobacco Board is vested with responsibility of regulating production of Virginia tobacco and its marketing to ensure a fair and remunerative price to growers and promotion of exports of tobacco and tobacco products.

RUBBER

Rubber is basic important raw material required for the manufacture of a variety of products. Rubber is mainly grown in southern states—Kerala, Tamil Nadu and Karnataka. Total area under rubber cultivation increased from 63,000 hectare in 1947-48 to 3.98 lakh hectare in 1987-88. Average yield per hectare of rubber plantation is currently around 944 kg Rubber plantations are dominated by small holders numbering 3.68 lakh sharing about 80 per cent of total rubber area. With a view to giving relief to industry and reviewing demand/supply position of natural rubber, import of rubber is allowed since 1978-79. Production and consumption of natural rubber during 1988-89 was estimated at 2.80 lakh tonnes and 3.34 lakh tonnes respectively. Rubber Board looks after the development of rubber industry.

CARDAMOM

At present, cultivation of cardamom is largely confined to Kerala, Tamil Nadu and Karnataka. It is estimated that an area of around one lakh hectare is under cardamom cultivation. Production of small cardamom in 1988-89 was 4,250 tonnes which during 1989-90 is estimated at around 3,250 tonnes. During 1988-89, 787 tonnes of cardamom worth Rs 10.28 crore with a unit value of Rs 130.73 per kg were exported. Spices Board constituted under the Spices Board Act, 1986 looks after the cardamom industry in all its spheres, *viz.*, production, marketing, exports, research, etc., and export promotion of spices.

COMMERCIAL RELATIONS

Continuous efforts are being made to foster India's economic and commercial relations with other countries. India continues to play a major role in international fora including the current Uruguay Round of multilateral trade negotiations. There are at present 66 commercial offices attached to Indian missions abroad including Ambassador of India to GATT (General Agreement of Tariff and Trade) who is also Deputy Permanent Representative to UNCTAD (United Nations Conference on Trade and Development) in the Permanent Mission of India, Geneva. These commercial offices/representatives function under budgetary control of Ministry of Commerce and play a vital role in promoting India's trade and economic relations abroad. Apart from advising and assisting Head of Mission on all commercial and economic matters, commercial representatives also assist Government in formulation of its trade and economic policies through regular feedbacks on market trends, trade promotion prospects and general economic situation of the country to which they are accredited. To keep our commercial representatives informed of important development in exports and economic sphere, a system of monthly news letter from the Ministry to missions was introduced with effect from June 1984.

SOUTH ASIAN REGION

South Asian region comprises SAARC countries and Iran and Afghanistan. Total trade with the region (excluding Bhutan) in 1988-89 was Rs 960 crore as against Rs 820 crore in 1987-88. Exports amounted to Rs 667 crore with significant increase in exports to Bangladesh and Sri Lanka. Delegations, both official and from private sector, have been exchanged to identify areas of mutual interest and remove constraints in promotion of exports to these countries.

Trade between India and Afghanistan is conducted in free convertible currencies in terms of the Trade Agreement signed in 1978. In August 1989 a delegation visited New Delhi for renewal of Memorandum of Understanding for fresh fruit imports from Afghanistan. A review of trade was undertaken to identify new avenues for export and possibility of industrial cooperation through joint ventures in Afghanistan.

Trade between India and Pakistan has been taking place in accordance with the export-import policy and prescribed procedures of the two countries. In July 1989 Pakistan notified a list of 322 additional items that could be imported from India by private sector in Pakistan. The Indo-Pak Joint Commission meeting was held in Islamabad in July 1989.

Trade with Bangladesh is conducted under the Indo-Bangladesh Trade Agreement of 1980 which provides for Trade on Most Favoured Nations (MFN) terms. It was renewed for a period of three years from 4 October 1989 when Minister of State for Commerce led a delegation for trade talks with Bangladesh.

With the expiry of Treaties of Trade and Transit with Nepal in March 1989, trade between the two countries is conducted on MFN basis pending conclusion of new agreement. However, at present all transit points between the two countries have been reopened.

Trade with Iran continued at, broadly, the same levels as in 1987-88. Indian companies and organisations are seeking to participate in post-war reconstruction work in Iran.

EAST ASIA

East Asia region comprises 27 countries including industrialised nations like Japan, Australia and New Zealand and newly industrialised countries like Hong Kong, Singapore, Republic of Korea, etc. Indian exports to this region registered an impressive growth of 45 per cent during 1988-89 reaching the highest ever level of Rs 4,454 crore, as compared to exports in 1987-88. Imports from this region rose by 28.5 per cent also reaching the highest ever level of Rs 6,356 crore as compared to imports in 1987-88. The adverse trade balance is mainly due to bulk imports of palm oil, wool, electronic goods, natural rubber, zinc, lead, cement, fertilisers, cooking coal, pig iron, steel structurals, wheels and axles, etc Main items of our exports to this region have been textiles, garments, cotton, ores and concentrates, tea, coffee, marine products, leather and leather manufactures, engineering goods, etc. There is now an upward trend in our exports of engineering goods to developed markets like Japan and Australia.

Japan is India's third largest trading partner after USA and USSR. Despite this, Indo-Japanese trade is just one per cent of Japan's global trade and around twelve per cent of India. An action plan for doubling Indian exports to Japan by 1989-90 from the level of Rs 1,100 crore in 1985-86 to Rs 2,000 crore was drawn up by the Ministry. This target was already achieved by 1988-89 itself.

First meeting of Indo-Thai Joint Commission was held in Bangkok in May 1989 which, *inter-alia* discussed trade-related matters. Target of US $ 1,000 million worth of bilateral trade was set for next three-year period. Four Memoranda of Understanding covering telecommunications, railways, meteorology and concessional finance were signed with Australia. First meeting of Indo-Australia Joint Ministerial Commission was held in Canberra in July 1989. The Commission considered among other things measures to strengthen bilateral relations in all areas, particularly in the field of commercial, economic, scientific and technological cooperation, etc.

First meeting of India-China Ministerial Joint Group on trade, economic, scientific and technological relations, set up recently, was held in September 1989 in New Delhi. Both countries also signed a trade protocol covering the period 20 September 1989 to 19 September 1990.

WEST ASIA AND NORTH AFRICA

West Asian and North African countries occupy important position in India's trade. In 1987-88, India's exports to this region were worth Rs 1,427.60 crore as compared to imports of Rs 4,548.16 crore. The balance of trade is not in favour of India bacause of imports of large quantities of crude oil from this region. This region is also an important source of supply of some industrial raw materials required in India, *viz.*, fertilisers, rock phosphate, etc. It holds considerable promise for growth of India's exports, particularly in engineering, agricultural products and gems and jewellery.

India has trade agreements with several countries of this region. These are: Egypt, Iraq, Jordan, Kuwait, Libya, Morocco, People's Democratic Republic of Yemen, Syria and Tunisia. India is also having joint commissions with some of these countries with a view to devising measures for improving and diversifying trade flow.

AFRICA (SOUTH SAHARA)

India has taken several measures to increase trade, bilateral cooperation and joint ventures with sub-Saharan African countries. Prominent measures undertaken include. exchanging trade delegations at Ministerial and official levels; holding joint committee/joint commission meetings; participating in fairs and exhibitions and organising exclusive Indian fairs.

Trade agreements have also been signed with various sub-Saharan countries to provide an institutional mechanism for promoting trade. Such agreements have been signed with 13 countries, namely, Ethiopia, Ghana, Angola, Kenya, Liberia, Senegal, Uganda, Zimbabwe, Zambia, Mozambique, Cameroon, Zaire and Nigeria.

EAST EUROPE

East European region continues to hold a prominent place in India's foreign trade. India's exports to this region have witnessed diversification with emphasis on non-traditional and manufactured products. The Soviet Union continues to be one of India's largest trading partners. India's exports to USSR during 1988-89 were worth Rs 2,606.28 crore as against imports of Rs 1,258 06 crore (excluding crude oil). Trade plan for 1990 envisages turnover of Rs 8,800 crore-exports to USSR Rs 5,300 crore and imports Rs 3,500 crore.

Continuous efforts are being made to increase and diversify trade with various countries in East Europe. Steps like participation in trade fairs and exhibitions, exchange of commercial delegations, convening of inter-Government joint commission meetings and conclusion of annual trade protocols for exchange of commodities, are being taken in this direction. Main items of export to East European countries are agricultural products, minerals and ores, chemicals and allied products, leather and leather manufactures, textiles and engineering goods, etc. Items of import from these countries are mainly crude oil and petroleum products, fertilisers, non-ferrous metals, newsprint, chemicals, machinery and equipment and other industrial raw materials.

WEST EUROPE

West Europe is another major trading area which accounted for about 28.2 per cent of India's total exports (excluding crude oil) and 35.3 per cent of imports during 1988-89. It has two major economic groupings—EEC (UK, FRG, France, Italy, Belgium, the Netherlands, Luxembourg, Denmark, Ireland, Greece, Spain and Portugal) and EFTA (Norway, Sweden, Finland, Austria and ,Switzerland) besides some other countries like Turkey, Malta and Cyprus. Most of India's total exports to West European region is accounted for by just seven countries, namely, UK, FRG, the Netherlands, Italy, France, Belgium and Switzerland. Hence most of markets in this region are still relatively unexplored. Imports from West European block are generally manufuctured products specially plant and machinery, chemicals, steel and transport equipment while India's exports largely comprise traditional goods, including textiles, garments, tea, tobacco, spices, leather, gems and jewellery, handicrafts, etc.

Formation of Single European Market in 1992 with economic integration of the twelve member-countries of EEC, is likely to create fresh opportunities for exports from developing countries like India. It may also pose certain challenges by way of increased competition, elevation of quality standards, etc.

Indian Trade Centre at Brussels is an important institution in West Europe responsible for India's export promotion. It has key role in diversification of exports, besides providing market intelligence and information on matters like distribution channels, quality and packing requirements, fashion trends, changing designs, etc., for Indian exporters.

There are other overseas offices of various export promotion organisations like Trade Development Authority, Engineering Export Promotion Council and State Trading Corporation in this region.

India has trade agreements with several West European countries, important being Indo-EEC agreement for commercial and economic cooperation. Besides Indo-EEC relations, bilateral economic relations came up for review at meetings of joint commissions/committees during 1987 and 1988. EEC accounts for nearly 24.36 per cent of exports, 31.9 per cent of imports and over 50 per cent of India's global Trade deficit. A computer information system is being set up at India's Brussels Centre to further streamline its working and utility for trade.

NORTH AMERICA

United States is India's leading trade partner with a sizeable two-way trade, accounting for about 19 per cent of exports. In 1988-89, major items of exports to USA were diamonds, readymade garments, engineering products, carpets and rugs, leather goods, cashew nuts, spices and coffee.

Canada is a growing market for Indian products, particularly non-traditional items. Principal export items are textiles and garments, engineering goods, chemicals, leather and leather products, jute carpets and druggets, tea, precious stones/jewellery, spices, coffee, fruits, vegetables and handicrafts. Finished and semi-finished products are gradually replacing traditional exports to Canada.

SOUTH AMERICA

South American region comprising Latin America and Caribbean countries accounts for about five per cent of country's external trade. India continues to be an insignificant partner of this region and has all along had an adverse balance of trade. Argentina, Brazil, Mexico, Venezuela, Trinidad and Tobago, Peru, Chile, Colombia, Cuba and Guyana have so far been our important export markets in this region. Sizeable imports of vegetable oils were being made till 1989 from Brazil and Argentina. Balancing of trade with this region has not been easy because of long distance, lack of direct sailings and knowledge in these countries about India's technical and export capabilities. However, efforts are being made to improve the situation.

Consequent upon Namibia (South West Africa) becoming independent, India has decided to lift the ban on trade with it. Imports and exports to Namibia heneceforth will be regulated under the prevalent Import and Export Policy. However, ban on trade with South Africa and Fiji will continue.

JOINT VENTURES ABROAD

India has set up joint ventures abroad as a part of its overall strategy to increase participation in development process of the Third World. By December 1989 there were 193 joint ventures, of which 152 were in operation and 41 under various stages of implementation. Of these 152 ventures, 94 are in manufacturing sector topped by light engineering goods followed by chemicals and pharmaceuticals and textiles. Other industries in which Indian joint ventures have been set up include palm oil refining and fractionation, iron and steel products, pulp and paper, glass and glass products, food products, leather, rubber products, etc. In non-manufacturing sector, largest number is in hotels and restaurants, followed by trading and marketing engineering contracts and construction, consultancy, etc. Total quantum of Indian equity in joint ventures in operation as on 31 December 1989 was Rs 183 crore. Regionwise, majority of joint ventures are located in neighbouring countries of South and East Asia followed by Africa. In projects and services EXIM Bank estimates value of contracts secured worth Rs 356 crore in April-December 1989-90 as compared to Rs 421 crore in 1988-89.

PUBLIC SECTOR AGENCIES

Various public sector agencies have been set up to increase State participation in country's export and import trade.

State Trading Corporation (STC) came up in 1956 as an autonomous corporation for diversifying foreign trade and supplementing efforts of private trade and industry in developing India's foreign trade. STC has also been asked from time to time to undertake price support operations to protect interests of growers, buffer stocking to ease problem of shortage of some essential items and management of items and various items of exports and imports channelised by Government. It achieved a turnover of Rs 2,594 crore in 1988-89. This consisted of exports worth Rs 530 crore, imports worth Rs 2,045 crore and domestic sales worth Rs 19 crore.

Project and Equipment Corporation (PEC), subsidiary of STC, was created to give impetus to export of engineering equipment and projects from India. It specialises in export of railway, rolling stock, heavy equipment and execution of civil construction and turn-key projects. It identifies technological competence of manufacturers of goods and other agencies for services and ensures fulfilment of contractual obligations in respect of quality and delivery schedules.

Tea Trading Corporation of India (TTCI) was established in 1971 to create a stable export market for Indian tea, particularly in its value added form, namely, packaged tea, tea bags, instant tea, etc. Other activities of the Corporation include marketing of tea for domestic consumption, management of tea gardens, warehousing of tea and establishment of other facilities beneficial to tea industry. TTCI has now been converted into a subsidiary of STC.

Minerals and Metals Trading Corporation of India Limited (MMTC) occupies a prominent place in India's foreign trade in minerals and metals. Exports of MMTC comprise mainly iron ore, manganese ore, coal, chrome and bauxite and imports mainly fertilisers, non-ferrous metals, industrial raw materials and steel. The Corporation has also been importing rough diamonds from producing countries and other markets for sale to Indian diamond exporters against Registered Exporters Policy (REP) and advance imprest licences. It has also made a modest entry in international market for cut and polished diamonds. MMTC has in the recent past diversified into many other areas in the form of a general trading house. It has been able to export diverse items like quartz, shellac, aluminium conductors, coffee, niger seeds, brass hardware, soya extractions, rice, tobacco, cashew, wirenails, industrial gloves, kitchen utensils, industrial screens, photocopiers and various engineering and chemical items. MMTC achieved a turnover of Rs 3,880 crore during 1988-89, comprising exports worth Rs 872.6 crore, imports worth Rs 2,971.4 crore and domestic sales worth Rs 36 crore.

Mica Trading Corporation of India Limited (MITCO) set up in 1974, is the only subsidiary of MMTC. It looks after exports of processed mica including mica scrap and waste. More than 90 per cent of purchases of mica by MITCO are made from small dealers. To increase exports of value added mica products in addition to processed mica, MITCO has set up a number of projects such as silvered mica and mica capacitor unit, micronised mica powder plant and mica paper unit.

Export Credit Guarantee Corporation of India Limited was originally set up in 1957 as Export Risk Insurance Corporation. In January 1964, it was transformed into Export Credit and Guarantee Corporation Limited and in December 1983 again renamed as Export Credit Guarantee Corporation of India Limited. Primary objective of the Corporation is to promote exports from India by providing export credit insurances and guarantee facilities to Indian exporters and commercial banks.

With the objective of unifying policy direction, control and organisation of exhibitions and commercial publicity, Trade Fair Authority of India (TFAI) has been set up as a Government company under the Companies Act, 1956. It took over the functions of erstwhile Directorate of Exhibitions and Commercial Publicity, India International Trade Fair Organisation and Indian Council of Trade Fairs and Exhibitions. The Authority started functioning from March 1977. TFAI is nodal agency of Government for organising India's participation in trade fairs abroad and exclusive Indian exhibitions there. It organises India International Trade Fair and other national and international specialised commodity fairs in India, providing assistance to Indian exporters for direct participation in fairs abroad. It also arranges publicity relating to fairs and exhibitions through various media in India and abroad.

AUTONOMOUS BODIES

There are a number of autonomous bodies under the Ministry connected with development of exports and export promotion activities

There are five statutory commodity boards responsible for production, development and export of tea, coffee, rubber, spices and tobacco. Export Inspection Council, Calcutta, statutory body, is responsible for enforcement of quality control and compulsory pre-shipment inspection of various exportable commodities.

Indian Institute of Foreign Trade, New Delhi, registered body, is engaged in : (i) training of personnel in modern techniques of international trade; (ii) organisation of research in problems of foreign trade; (iii) organisation of marketing research, area surveys, commodity surveys and market surveys, and (iv) dissemination of information arising from its activities relating to research and market studies.

Indian Institute of Packaging, Bombay, set up in 1966, is also a registered body. The Institute undertakes research on raw materials for packaging industries, organises training programmes on packaging technologies and stimulates consciousness on the need for good packing, etc.

There are at present 11 export promotion councils with the Ministry. These are registered as non-profit organisations under the Companies Act. They perform advisory and executive functions and secure active cooperation of growers, producers and exporters in export efforts. These councils are also the registering authorities under the import policy for registered exporters.

Agricultural and Processed Food Products Exports Development Authority (APEDA) came into existence in February 1986. The Authority acts as focal point for agricultural exports and concentrates on marketing of processed foods in value added form. It also introduces effective quality control measures.

Federation of Indian Export Organisations, New Delhi is an apex body of various export promotion organisations and institutions. It functions as primary servicing agency to provide integrated assistance to Government recognised export houses and as central coordinating agency in respect of export promotional efforts in the field of consultancy servies in the country.

Indian Council of Arbitration, New Delhi, set up under the Societies Registration Act, promotes arbitration as means of settling commercial disputes and popularises arbitration among traders, particularly those engaged in international trade.

Trade Development Authority, New Delhi, set up in July 1970 as a registered society, induces and organises entrepreneurs largley in medium and small scale industries to develop individual export capabilities. It provides assistance in personalised form to individual exporters from the stage of intention to export through collection and collation of information, product development, market research and analysis. It also advises on export finance and assists them in securing and implementing export orders.

Marine Products Export Development Authority, Cochin, statutory body set up in August 1972, is responsible for development of marine products industry with special reference to exports.

Central Advisory Council on Trade comprising representatives from different organisations and individuals with business standing and expertise in the field of commerce, advises Government on matters relating to : (i) export and import policy programmes; (ii) operation of import and export trade controls; (iii) organisation and development of commercial services, and (iv). organisation and expansion of export production.

Board of Trade has been constituted under chairmanship of Union Commerce Minister to advise Government on programmes and strategies for export promotion.

ATTACHED SUBORDINATE OFFICES

Import-Export Trade Control Organisation headed by Chief Controller of Imports and Exports, is responsible for execution of export and import policies of Government. Import and export licensing of iron and steel and ferro-alloys is also looked after by this Organisation. It has regional offices at Calcutta, Bombay, Madras, New Delhi, Kanpur, Moradabad, Bangalore, Ahmadabad, Hyderabad, Cochin, Bhopal, Ludhiana, Amritsar, Jaipur, Guwahati, Varanasi, Shillong, Panaji (Goa), Srinagar, Gandhidham, Patna, Chandigarh, Cuttack, Rajkot, Pondicherry, Vishakhapatnam and Tuticorin.

Export promotion offices at Bombay, Calcutta, Madras, Cochin, Nagpur and Pune are also functioning under regional Joint Chief Controllers of Imports and Exports or Deputy Chief Controllers of Imports and Exports.

Directorate General of Commercial Intelligence and Statistics (DGCI and S), Calcutta is the primary government agency for collection, compilation and publication of foreign, inland and ancillary trade statistics. This Directorate disseminates trade data and commercial information to various national and international bodies and trading public. It brings out a number of publications relating to foreign trade. Commercial intellingence wing is entrusted with amicable settlement of commercial disputes arising between Indian exporters and foreign buyers and vice versa. DGCI and S also maintains a commercial library widely used by exporters, importers, research scholars and others.

Development commissioners at Kandla Free Trade Zone, Gandhidham, Santacruz Electronics Export Processing Zone, Bombay, Falta Export Processing Zone, Madras Export Processing Zone, Cochin Export Processing Zone, NOIDA Export Processing Zone and Vishakhapatnam Export

Processing Zone are responsible for administration of their respective zones for cent per cent export-oriented units.

Enemy properties in India are being administered by Custodian of Enemy Property for India, Bombay. It came into existence in 1939 in the wake of Second World War and is entrusted with two-fold duties, *viz.*, (i) custody, management and administration of moveable and immovable properties in India and (ii) settlement of claims of Indian nationals whose properties were lost in Pakistan during and after Indo-Pak conflict of 1965.

22 Transport

EXISTING transport system of the country comprises several modes of transport including rail, road, coastal shipping, air transport, etc. Transport has recorded a substantial growth over the years both in spread of network and in output of the system

Seventh Plan aimed at crucial task of increasing capacity of transportation system in step with economic development of the country through technological upgradation, optimisation of capacity at operational level, stepped-up investment and shift in priorities. Increase in capacity was to be attained through replacement and rehabilitation of assets along with maintenance rather than mere additions

RAILWAYS

Indian Railways virtually form the life-line of the country, catering to its needs for large scale movement of traffic, both freight and passenger, thereby contributing to economic growth and also promoting national integration. Economic, agricultural and insdustrial development is inextricably interwoven with its performance. With its phenomenal growth from 34 km in 1853 into a gigantic railway network of 61,987 km, Indian Railways are now Asia's largest and world's second largest railway system under a single management.

It operates on four different gauges–broad gauge (1676 mm), metre gauge (1000 mm) and the narrow gauge (762 mm and 610 mm). Gaugewise route length and track length as on 31 March 1989 is as under.

Gauge	Route kilometre	Running track kilometre	Total track kilometre
Broad Gauge	34,108	48,772	70,763
Metre Gauge	23,632	24,826	32,320
Narrow Gauge	4,247	4,247	4,756
Total	61,987	77,845	1,07,839

About 13.5 per cent of the total route kilometre, 20.4 per cent of running track kilometre and 19.8 per cent of total track kilometre are electrified.

As on 31 March 1989 the motive power on the Railways comprised 3,826 steam, 3,454 diesel and 1,533 electric locomotives. Currently, the Railways are in the process of inducting new designs of fuel-efficient locomotives of higher horse power, high speed coaches and modern bogies for freight traffic. Modern signalling like panel interlocking, route relay interlocking, centralised traffic control, automatic signalling and multi-aspect colour light signalling, are being progressively introduced to increase the throughput India has made impressive progress in indigenous production of rolling stock and a variety of other equipment over the years and is now self-sufficient in most of the items.

Main objective of the Railways planning has been to develop traffic, since the inception of First Five Year Plan in 1950-51. During Seventh Plan, emphasis was laid on a comprehensive programme of system modernisation With capacity being stretched to the full, investment in cost-effective technological changes became inescapable in order to meet ever-increasing demand for rail transport. Along with the major thrust directed towards rehabilitation of assets, technological changes and upgradation of standards were initiated in important areas of track, locomotives, passenger coaches, wagon bogie designs, signalling and telecommunication For long term requirements, the Railways have also prepared a 'corporate plan' covering 15 year period 1985-2000. It seeks to provide 370-400 billion net tonne kilometric freight traffic, 310-330 billion non-suburban passenger kilometre and 105-110 billion suburban passenger kilometre by the turn of the century. Progress of railway traffic and inputs is shown in table 22.1.

ADMINISTRATION

Railway Board is responsible for administration and management of Indian Railways. The Board is under supervision of Minister for Railways. It comprises chairman, financial commissioner for Railways and five other functional members.

RAILWAY ZONES

Railways are divided into nine zones, each headed by a General Manager, who is responsible to Railway Board for operation, maintenance and financial matters.

Nine zones, with their headquarters and route kilometre in brackets, are: Central (Bombay VT: 6,846), Eastern (Calcutta: 4,290), Northern (New Delhi: 10,982), North-Eastern (Gorakhpur: 5,145), North-East Frontier (Maligaon-Guwahati: 3,760), Southern (Madras: 6,758), South-Central (Secunderabad: 7,204), South-Eastern (Calcutta: 7,116) and Western (Bombay-Churchgate: 9,886).

Cooperation between public and Railway administration is secured through various committees including National Railway Users' Consultative Committee, Zonal Railway Users' Consultative Committees and Divisional Railway Users' Consultative Committees.

RAILWAY FINANCE

Since 1924-25, Railway finances remain separated from general revenues.

TABLE 22.1 PROGRESS OF RAILWAY TRAFFIC AND INPUTS

ar	Route length (kilometre)			Running track (km)	Pass-engers origi-nating (lakh)	Goods origi-nating (lakh tonne)	Number of locomotives			Number of Coaches	Number of Wagons
	Electri-fied	Non-Electri-fied	TOTAL				Steam	Diesel	Electric vehicles		
50-51	388	53,208	53,596	59,315	12,840	930	8,120	17	72	19,628	2,05,596
60-61	748	55,499	56,247	63,602	15,940	1,562	10,312	181	131	28,439	3,07,907
70-71	3,706	56,084	59,790	71,669	24,311	1,965	9,387	1,169	602	35,145	3,83,990
80-81	5,345	55,895	61,240	75,860	36,125	2,200	7,469	2,403	1,036	38,327	4,00,946
81-82	5,473	55,757	61,230	75,964	37,044	2,458	7,245	2,520	1,104	37,960	3,92,062
82-83	5,815	55.570	61,385	76,197	36,554	2,560	6,292	2,638	1,157	37,539	3,83,429
83-84	5,971	55.489	61,460	76,407	33,252	2,580	6 217	2,800	1,194	37,931	3,74,757
84-85	6,325	55,525	61,850	76,963	33,332	2,648	5,970	2,905	1,252	38,571	3,65,392
85-86	6,517	55,319	61,836	77,153	34,335	2,864	5,571	3,046	1,302	38,277	3,59,617
86-87	7,275	54.538	61,813	77,254	35,937	3,073	4.950	3,182	1,366	37,997	3,54,041
87-88	8,157	53,819	61,976	77,671	37,921	3,185	4,427	3,298	1,433	37,749	3,46,844
88-89	8,338	53,649	61,987	77,845	35,003	3.295	3,826	3.454	1,533	37,870	3,45,821

EST COAST RAIL LINE

onkan Railway Corporation is being set up with an equity capital of Rs 250 crore (Railways contributing 51 per cent and the rest by four states of aharashtra, Goa, Karnataka and Kerala) It will construct the 837 km Konkan stretch of west coast rail line, likely to be completed in five years The roject likely to cost Rs 1,200 crore would have a total of 68 stations, covering a distance of 285 km in Karnataka, 129 km in Goa and 423 km in aharashtra. Total saving in travel distance would be: Mangalore-Bombay (1,050 km), Mangalore-Ahmadabad (1.218 km), Mangalore-Delhi (707 km) d Cochin-Bombay (437 km)

They have their own funds and accounts and the Railway budget is presented separately to Parliament. However, the Railways contribute to the general revenue a dividend on the capital invested. Quantum of contribution is reviewed periodically by a Parliamentary Convention Committee.

ROLLING STOCK

Over the years, Indian Railways have made concerted efforts to achieve self-sufficiency in production of rolling stock. Locomotives are built in Chittaranjan Locomotive Works (CLW), Chittaranjan and Diesel Locomotive Works (DLW), Varanasi. In 1988-89, CLW manufactured 100 broad gauge electric locomotives, 20 broad gauge diesel hydraulic locomotives, 14 metre gauge diesel hydraulic locomotives and seven narrow gauge diesel locomotives. DLW produced 133 broad gauge diesel electric locomotives (including 10 locos for public sector units)and 15 metre gauge diesel electric locos during 1988-89. Diesel Component Works (DCW) is being set up by the Railways at Patiala in two phases for manufacturing components of diesel locos and sub-assemblies. Phase I of the project is complete and has started manufacture of carbon brushes, armature coils and re-manufacture of traction motors. Bulk of passenger coaches are manufactured in Integral Coach Factory (ICF), Perambur, Madras. ICF manufactured 925 fully furnished coaches during 1989-90. Its capacity is being raised to 1,000 coaches next year. Besides, about 400 coaches are being built by BEML, Bangalore and 153 coaches by Jessop and Co. A new rail coach factory set up in March 1988 at Kapurthala, produced 170 coaches during 1989-90. When fully completed, it will have the capacity of 1,000 coaches per annum. A wheel and axle plant was set up at Bangalore in 1984 to cut down imports in this field.

RESEARCH AND DEVELOPMENT

Research, Designs and Standards Organisation (RDSO) at Lucknow is R and D Wing of Indian Railways. For upgrading R and D facilities at RDSO Rs 280 crore is to be spent during the corporate Plan period (up to 2000 AD) to help the Organisation serve as a nodal agency for indigenous development of future generation railway systems. For integrated development, key technology areas have been identified and mission-oriented groups set up, involving RDSO, industrial sector and centres of advanced learning. It has shown encouraging results in some areas like studies in reducing fuel consumption of diesel engines and computer applications. Designs for wagons, coaches and locomotives for next generation metre gauge rolling stock, are also in progress.

Indian Railways have taken up five Missions for technology development. These are: (1) development of technology for operation of 4,500t freight services at double the existing average speeds on mixed traffic routes; (2) operation of passenger services up to 160 kmph on mixed routes

and 200 kmph on dedicated routes; (3) heavy haul freight trains up to 18,000t trailing loads at 75 kmph; (4) upgradation of metre gauge systems covering passenger and freight services and transhipment facilities, and (5) absorbing futuristic technologies.

PASSENGER TRAFFIC

There has been an impressive increase in volume of passenger traffic both in terms of number passengers and passenger kilometre which is a product of passengers carried and average distance traversed. Passengers originating had risen from 12,840 lakh in 1950-51 to 35,000 lakh in 1988-89 and passenger kilometre from 67 billion in 1950-51 to 264 billion in 1988-89. Despite constraint of resources, the Railways have been able to cope with increasing demand of passenger traffic.

Various expert bodies like National Transport Policy Committee, Railway Reforms Committee and Rail Tariff Enquiry Committee, have recommended that the Railways should mainly concentrate on meeting the demand of medium and long distance passenger traffic, leaving short destance slow moving traffic (except high density point-to-point corridors) to be carried by road. Such an integrated transport policy is beneficial to society as short distance traffic is carried more economically by road. Keeping this in view Indian Railways adopted a new strategy to reorganise and rationalise existing non-suburban passenger services so as to optimise use of their resources. As a result, vehicle km per vehicle day (coach utilisation) improved from 354 on broad gauge and 207 on metre gauge in 1984-85 to 404 on broad gauge and 269 on metre gauge during 1988-89. Composition of some Mail/Express trains was augmented to cater to higher volumes of passenger traffic. Twenty one new trains were introduced to and from Delhi and New Delhi stations during the last three years. Besides additional facilities are being created by increasing platforms and maintenance facilities at Hazrat Nizamuddin station. Phase I of the work is over and Phase II is in progress. Number of passengers registered five per cent increase and passenger kilometre went up by 16.4 per cent in 1988-89 as compared to 1984-85. Comparative figures are as under:

Year	Train kilometre (lakh)	No. of passenger (lakh)	Passenger kilometre (lakh)
1984-85 (Terminal year of Sixth Plan)	3,216	33,330	22,65,820
1988-89 (Fourth year of Seventh Plan)	3,532	35,000	26,37,310
Percentage increase	9.8	5.0	16.4

PASSENGER AMENITIES

Priority is given for providing maximum comfort to passengers. Number of air-conditioned sleeper cars and cushioned 3-tier sleeper coaches has gone up. Another important step was the introduction of *Shatabdi Express* between New Delhi and Jhansi with a maximum speed of 140 km from 10 July 1988. This was a breakthrough in high speed technology.

Several steps have been taken to improve conditions of second class compartments. These are: provision of cushioned berths in day coaches and cushions in sleeper coaches; increase in water tank capacity on broad and metre gauge coaches; drinking water facilities on long distance trains, water coolers in sleepers and day coaches on trial basis, progressive vestibuling of important Mail and Express trains; improved cleanliness of bathrooms, high pressure water jets at terminals and enroute, and provision of mobile train cleaning staff on selected trains.

Computerised reservation now exists at Delhi, Calcutta, Bombay, Madras, Ahmadabad, Secunderabad, Bangalore, Bhopal and Lucknow. Return reservation facility is available between Delhi and Calcutta, Delhi and Bombay, Delhi and Madras and Calcutta and Madras. This is being extended to cover Bomaby-Calcutta and Bombay-Madras. Nine more important stations Pune, Jammu Tawi, Patna, Guwahati, Gorakhpur, Jaipur, Trivandrum, Bhubaneshwar and Cuttack will have computerised reservation in 1990-91. With this, 66 per cent reservations on Indian Railways would be on computer. It is further proposed that all stations handling over 1,500 reservations per day, will he computerised by 1990-95.

FREIGHT TRAFFIC

Rapid progress in industrial and agricultural sectors has generated higher level of demand for rail transport, particularly in core sectors like coal, steel, ores, petroleum products and essential commodities such as foodgrains, fertiliser, cement, sugar, salt, edible oils, etc.

Revenue freight traffic increased from 730 lakh tonnes in 1950-51 to 3,020 lakh tonnes in 1988-89. Total transport effort measured in terms of net tonnes kilometer (NTkm) increased from 38 billion in 1950-51 to 222 billion in 1988-89. Some of the measures taken for improvement are: (i) line capacity augmentation on certain critical sections and modernisation of signalling system; (ii) measures such as unit train operation for bulk commodities like coal; (iii) increase in roller-bearing-equipped wagons, and (iv) increase in trailing loads to 4,500 tonnes. Performance of the Railways from 1986-87 to December 1989 is given in table 22.2.

PUBLIC SECTOR UNDERTAKINGS

There are four public sector undertakings under Ministry of Railways. These are Rail India Technical and Economic Services Limited (RITES), a leading transportation consultants in India and abroad; Indian Railway Construction Company Limited (IRCON), engaged in construction of railway projects on turn-key basis both in India and abroad; Indian Railway Finance Corporation (IRFC) which raises funds through public borrowings

TABLE 22.2 PERFORMANCE OF RAILWAY SECTOR

Item	1986-87	1987-88	1988-89[1]	April-December		Percentage change		
						1987-88	1988-89	1989-90[2]
				1988-89	1989-90	1986-87	1987-88	1988-1989[2]
1. Total revenue earning freight traffic (million tonne)	277 75	290 21	302.05	218 07	224.19	4 5	4 1	2.8
(i) Coal	109 45	119.84	128 01	93.60	95 19	9 5	6 8	1.7
(ii) Raw materials for steel plants (excl.coal)	24 05	24 86	26.97	18 81	19.92	3 4	8 5	5.9
(iii) Pig iron and finished steel from steel plants	9 48	9 87	10 18	7 38	7.18	4 1	3 1	-2.7
(iv) Iron ore for exports	14 17	13 04	13 64	9 66	10 62	-8 0	4.6	9.9
(v) Cement	19 79	22 32	25 91	18 45	19.89	12 8	16 1	7 8
(vi) Foodgrains	29.00	30 13	24 88	18 39	16 92	3 9	-17 3	-8 0
(vii) Fertilisers	14 53	13 18	16 10	11 83	13 02	-9 3	22.1	10.1
(viii) POL	19 85	21.69	22 60	16 44	17 80	9 3	4 2	8.3
(ix) Balance "Other goods"	37.43	25 28	33 76	23 51	23 65	-5 7	-4 3	0.6
2. Net tonne-kilometre (billion)	214.10	222 53	222 37	161 98	166 86	3 9	-0 1	3 0
3. Net tonne-kilometre per wagon per day (BG)	1,420	1,449	1,453	1,395	1,424	2 0	0 3	2.1
4. Passenger traffic originating (million)	3,594	3,792	3,500	2,628	2,699	5 5	-7 7	2 7
5. Passenger kilometre (billion)	256.5	269 4	263 7	195 5	206 3	5 0	-2 1	5.5

1. Provisional.
2. April – December

Source: Economic Survey 1989-90

for augmenting Railway plan finances, and Container Corporation of India (CONCOR) to handle international and domestic containers.

Centre for Railway Information Systems (CRIS) is functioning as a society under Ministry of Railways and engaged in development of computer systems on Indian Railways.

ROAD TRANSPORT

Road transport plays a key role in socio-economic development. Most suitable for short and medium distance, it offers a number of advantages such as flexibility, reliability, speed and door-to-door service. It complements other modes of transport. Road transport forms an indispensable element of national transportation system. Over the years share of road transport in overall traffic handling has been continuously increasing. There has been a substantial shift from rail to road. Capacity constraints on railways and advantages of road transport combined with expansion of road network has contributed to this. Number of motor vehicles in the country has been continuously increasing. From just 34,000 buses in 1950-51, it went up to 2,93,000 in 1988-89. In the corresponding period, number of trucks increased from 82,000 to 11,40,000. Eighth Plan envisages an annual growth of seven per cent for trucks and eight per cent for buses.

State participation in road transport was introduced in 1950 to provide efficient, economical and well-coordinated passenger services and goods transport to particularly meet needs of hilly and underdeveloped areas. Most of the states/union territories have nationalised passenger transport in varying degrees. Forty per cent buses are being run by public sector undertakings. Fifty Seven state road transport undertakings comprising a fleet strength of over 90,000 buses, are catering more than five crore passengers everyday. To meet increasing travel by bus, state road transport undertakings are expected to procure more than 70,000 buses for replacing overaged buses and also meeting additional requirements of fleet during Eighth Plan period. Private sector runs almost entire goods transport by road and also handles about 60 per cent of passenger services.

The five-decade old Motor Vehicles Act, 1939 has been replaced by the Motor Vehicles Act, 1988. The new Act has been brought into force from 1 July 1989. It has been enacted to accommodate present day technological advancement in automotive sector, besides making use of techniques of scientific management of road transportation and also to remove unnecessary procedural encumberances and restrictions. Salient features of this Act are: (i) liberalisation of grant of permits of all types including national permits for trucks and all-India tourist permits for buses; (ii) simplification of procedure for grant of permits for stage carriages, contract carriages and all-India tourist vehicle permits; (iii) learner's licence made valid throughout the country. Age limit for obtaining licence for mopeds, etc., reduced to 16 years. Validity of licence for personal vehicle made 20 years or 40 years of the age of holder, whichever is earlier and thereafter renewal after every five years; (iv) provisions made to achieve objectives of road safety, pollution control and standardisation of components of vehicles; (v) new schemes introduced for—(a) 'rent a cab' for promoting tourism, (b) resting stations for vehicle fitness, (c) driver training establishments and (d) computerisation of records in regard to driving licences, registration of vehicle, etc., and (vi) welfare measures undertaken (a) raising liability of compensation to unlimited extent in case of accident involving any type of motor vehicles, (b) raising quantum of compensation in claim cases of road accidents on principle of 'no fault liability' from Rs 15,000 to Rs 25,000 for death and from Rs 7,500 to Rs 12,000 for disability, (c) raising quantum of compensation in 'hit and run' cases from Rs 5,000 to Rs 8,500 for death from Rs 1,000 to Rs 2,000 for grievous hurt respectively, (d) making obligatory on the part of MACT to deliver copy of judgment within 15 days of announcement of award and payment of compensation within 30 days and (e) making a provision that no appeal would lie, if amount awarded is less than Rs 10,000. In other cases appeal would require 50 per cent of awarded amount as deposit or Rs 25,000, whichever is less.

ROADS

India has one of the largest road networks in the world. The country's total road length was 16,20,504 km in 1983-84. Seventh Plan laid emphasis on a coordinated and balanced development of road network in the country under (i) primary roads comprising national highways; (ii) secondary and feeder road system covering state highways and major district roads, and (iii) rural roads including village roads and other district roads. Substantial outlays were proposed for road development in rural and tribal areas.

In the first three Five Year Plans and three Annual Plans, a sum of Rs 1,108 crore was spent on road development. During Fourth, Fifth, one Annual Plan and the Sixth Plan, a sum of Rs 7,945 crore was spent on this. Outlay for road development under Seventh Plan for Central sector was Rs 1,019.75 crore, for state sector Rs 3,666.98 crore and for union territories Rs 513.31 crore.

NATIONAL HIGHWAYS

Government is responsible for national highway system. In 1947, approximately 2,500 km of missing road links and thousands of culverts and bridges, which did not exist, were required to be constructed to have an integrated and continuous network. There was an increase in missing road links with addition of new roads to national highway system in later years. Up to 31 March 1989 road links including diversions constructed totalled 4,605 km, improvement of low grade section completed in 23,054 km, widening and strengthening single lane section to double lane carriageway done in 24,836 km and 459 major bridges constructed. Present national highway system includes a total road length of 33,612 km. An outlay of Rs 891.75 crore had been provided in Seventh Plan for development of national highways. Though the national highways constitute only two per cent of total road length, they carry nearly one-third of road traffic. World Bank is to provide loans worth 20 crore US dollar for development of national highways in six states, namely, Gujarat, Haryana, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal.

STATE SECTOR ROADS

State highways and district and rural roads are the responsibility of state governments and are maintained by various agencies in states and union territories. Roads are being developed in rural areas under Minimum Needs Programme (MNP), objective being to link all villages with a population of 1,500 and above and 50 per cent of villages with a population of 1,000-1,500 with all-weather roads. Government also assists in development of certain selected roads in states.

BORDER ROADS

Border Roads Development Board was set up in March 1960 for accelerating economic development and strengthening defence preparedness through rapid and coordinated improvement of road communication in north and north-eastern border areas. Development activities now encompass Rajasthan, Jammu and Kashmir, Himachal Pradesh, Uttar Pradesh, Madhya Pradesh, Sikkim, Assam, Meghalaya, Nagaland, Tripura, Manipur, Mizoram, Arunachal Pradesh, Bihar, Andaman and Nicobar Islands and also Bhutan.

Border Roads Organisation (BRO) executes its works departmentally. It is a self-sufficient force, mechanised and mobile and during national emergencies provides engineering support to the Army. Besides construction of roads, BRO has also undertaken construction of airfields, buildings and other operational works for Defence Services. As on 31 March 1989, BRO had constructed about 21,530 km of roads. It is also maintaining about 16,000 km of roads in various regions of its operations.

RURAL ROADS

Rural roads are constructed under MNP, Rural Landless Employment Guarantee Programme (RLEGP), National Rural Employment Programme (NREP) and Command Area Development (CAD). Recently, Government has set up a committee to examine different aspects of integrating various rural road programmes. MNP envisages linking of all villages with a population of 1,500 and above and 50 per cent of villages with a population between 1,000 to 1,500.

LENGTH OF ROADS

Total length of roads in India was 16,20,504 km (both surfaced and unsurfaced roads) in 1983-84 Statewise break-up of length of roads is given in table 22.3

TABLE 22.3 ROAD LENGTH IN INDIA

(Km)

		Surfaced	Unsurfaced	Total
ALL INDIA		,47,003	8,73,501	16,20,504
STATES				
1.	Andhra Pradesh	63,715	68,337	1,32,052
2.	Arunachal Pradesh	2,050	10,728	12,778
3	Assam	8,138	52,569	60,132
4	Bihar	28,660	54,975	83,635
5	Goa[1]	3,220	2,521	5,741
6	Gujarat	52,370	13,968	66,338
7	Haryana	21,659	3,358	25,017
8	Himachal Pradesh	4,948	16,331	21,279
9	Jammu and Kashmir	7,434	5,378	12,812
10	Karnataka	69,879	45,308	1,15,187
11	Kerala	24,162	88,880	1,13,042
12	Madhya Pradesh	60,874	55,339	1,16,213
13	Maharashtra	97,601	86,533	1,84,134
14.	Manipur	2,315	3,633	5,948
15	Meghalaya	1,806	3,630	5,436
16	Mizoram	1,171	1,494	2,665
17.	Nagaland	1,285	5,830	7,115
18	Orissa	17,506	1,04,740	1,22,246
19.	Punjab	37,103	10,707	47,810
20	Rajasthan	43,993	39,476	83,469
21	Sikkim	1,229	62	1,291
22	Tamil Nadu	81,742	62,021	1,43,763
23	Tripura	1,302	8,770	10,072
24	Uttar Pradesh	74,290	98,547	1,63,837
25	West Bengal	25,917	31,622	57,539
UNION TERRITORIES				
1	Andaman and Nicobar Islands	612	49	661
2	Chandigarh	1,234	—	1,234
3	Dadra and Nagar Haveli	241	37	278
4.	Delhi	9,167	7,119	16,286
5	Daman and Diu[1]	3,220	2,521	5,741
6	Lakshadweep			
7.	Pondicherry	1,380	1,114	2,494

1. Separate figures for the State of Goa and the Union Territory of Daman and Diu are not available

Note The data given above is as on 31 March 1984

SHIPPING

Overseas shipping has an extremely important role to play in India's international trade. The country has the largest merchant shipping fleet among developing countries and ranks 18th in the world in shipping tonnage. Acquisition of Indian shipping tonnage showed signs of improvement. Fleet strength by March 1989 was 402 vessels of 59 lakh Gross Registered Tonnage (GRT) as compared to 366 vessels with 55.4 lakh GRT in March 1988. By 1989-90 total GRT was likely to reach 60 lakh.

SHIPPING BODIES

National Shipping Board is a statutory body set up under the Merchant Shipping Act, 1958 to advise Government on shipping matters. Ship Acquisition Licensing Committee deals with ship acquisition proposals received from shipping companies. Inter-ministerial high level committee looks into problems of shipping industry. All India Ship Council is concerned with negotiation on freight and shipping problems with shipping companies and suggestions made at shipping conferences. Indian National Shipowners Association seeks to promote the interest of national shipping and other allied industries.

SHIPPING COMPANIES

There were 52 shipping companies in the country in operation as on 31 October 1989 including Shipping Corporation of India (SCI), a public sector undertaking. Of these 23 are engaged exclusively in coastal trade, 20 in overseas trade and the remaining nine in both coastal and overseas trade.

SCI, which is the biggest shipping line of the country, had a merchant fleet of 127 vessels of 29.09 lakh GRT as on 31 December 1989 and operated on almost all maritime routes. SCI tonnage accounts for about 50.23 per cent of total Indian tonnage.

Major private sector shipping companies which own one lakh or more GRT are: Great Eastern Shipping Co. Ltd. (5.80 lakh), Scindia Steam Navigation Co., (2.25 lakh), Chowgule Steamships Ltd. (2.20 lakh), South India Shipping Corporation Ltd. (2.19 lakh), Essar Shipping Ltd. (2.07 lakh), India Steamship Co. Ltd. (1.66 lakh), Surrendra Overseas Ltd. (1.66 lakh) and Century Shipping (1.01 lakh).

COASTAL SHIPPING

Coastal Shipping is the most efficient and comparatively cheaper mode of transport for carriage of bulk traffic over long hauls particularly when origin and destination of traffic stream is located along the coast. India has a long coast line of 5,560 km. Coastal shipping plays an important role in integrated transport network of the country particularly when inland modes are strained. Seventh Plan had targetted a coastal GRT requirement of 3.1 lakh by 1989-90 as compared to 2.37 lakh GRT at the end of Sixth Plan. Coastal tonnage was 3,42,336 GRT on 1 April 1985 (beginning of Seventh Plan). As on 1 April 1989 coastal GRT was 4,55,244 which reveals actual addition of only 1,12,908 GRT from 1 April 1985 to 1 April 1989. Increase of tonnage in tune with targetted tonnage for Seventh Plan was not as expected for reasons such as necessary conditions and financial constraints which affected development of tonnage.

Coastal shipping faces several constraints. Overaged vessels are fuel-inefficient and involve high maintenance and operating costs. This has led to increase in bunker costs, operating expenses, higher stevedoring charges and uneconomic freight structure which do not compare well with either rail or road. Furthermore, coastal shipping carries low-rated bulk commodities like coal, cement and salt for which railway freight rates are lower, with consequent consumer preference for rail transport.

Inordinate delays at ports too have affected competitive advantage of coastal shipping. It is estimated that ships spend seventy per cent of their time at ports. Apart from cumbersome port and customs procedure, other restrictions like inadequate draft have precluded optimal utilisation of shipping capacity. There are also directional imbalances in coastal traffic movement. Thus, empty movement (sailings in ballast) is very often undertaken by coastal vessels following unloading of coal at west coast ports.

During Seventh Plan, efforts were made to relieve constraints effecting coastal shipping operations to maximum extent possible. Overaged vessels were to be replaced with modern fuel-efficient vessels. Port procedures were to be streamlined to provide priority berthing. Present customs procedures are being simplified to some extent for speedy clearance of coastal vessels by cutting the delay caused on account of lengthy customs formalities. Procedure for revision of freight rates is being simplified so that uneconomic rates do not impinge the viability of this sector. Improvement in facilities at intermediate ports is being contemplated for coastal vessels. It was estimated that about 70 lakh tonnes of cargo would move by coastal shipping by end of Seventh Plan.

Cargo handled by coastal ships for last four years is as follows:

Year	Coal	Clinker	POL	Crude Oil	Passenger
1986	31,79,122	8,00,000	41,19,000	26,26,000	4,17,000
1987	44,09,970	7,41,000	54,65,000	26,52,000	4,41,860
1988	50,61,289	7,46,000	20,13,000[1]	60,96,000[1]	2,74,776
1989	51,81,262[2]	3,75,200[3]	NA	NA	87,377[3]

1. Estimated.
2. Up to October 1989.
3. Up to June 1989.

NA—Not available.

INDIAN REGISTER OF SHIPPING

India's National Ship Classification Society was formed in March 1975 under the Companies Act, 1956. Its main objectives are: (i) to provide a faithful and accurate classification and record of mercantile shipping classed with Indian Register of Shipping (IRS); (ii) to establish and administer standards for the construction and periodical survey of ships and other marine structures; (iii) to approve design of, to survey and to issue reports on land-based installations, machinery, materials, and apparatus of all kinds, and (iv) to aid and develop marine technology in India through research and development work.

IRS has its head office in Bombay and out-port offices at Bombay, Calcutta, Vishakhapatanam, Madras, Cochin, Goa, Rourkela and Tiruchirapally. General Insurance Corporation of India and Tariff Advisory Committee accept all coastal and port craft up to a value of Rs 10 crore for single classification of IRS. Government has authorised the IRS to assign International Load Lines and carry out Cargo Ship Safety Construction Surveys of Indian-flag ships. At present 180 ships have been assigned these Load Lines.

In order to maintain acceptable standards and provide world-wide coverage for its services, the IRS has entered into agreements of mutual cooperation with all major international classification societies by virtue of which ships can also be classed dually with IRS as well as corresponding society with arrangements for survey all over the world. These agreements also enable IRS to get technical back-up whenever required for its varied services from different sources.

By October 1989, the Society had 612 ships totalling 44.8 lakh GRT in its class and 247 ships of various types under construction in India and abroad under IRS class. IRS is actively involved in inspection and certification of machinery, equipment and components at manufacturers' works. IRS also provides specification services on behalf of owners who can not generally spare their expert personnel for day-to-day supervision of new construction at shipyards. It has so far provided such services for about 100 vessels both in India and abroad. In non-marine industrial sector, the IRS provides third party independent inspection services. Organisations like Oil and Natural Gas Commission, Indian Oil Corporation, Oil India Ltd., Maharashtra Water Supply Board, Calcutta Port Trust, Bharat Heavy Plates and Vessels, Mazagon Dock Ltd., Garden Reach Shipyard and Engineers Ltd., Kandla Port Trust, Hidustan Shipyard Ltd., Cochin Shipyard Ltd., Gujarat Electricity Board and BHEL have availed of such services for a variety of equipment including electrical level luffing cranes, pressure vessels, flame-proof equipment, special pipes to API standards, high voltage and high-power equipment, fire-fighting equipment, etc. IRS has also provided its third party inspection services to project consultants such as UHDE for inspection of storage tanks for petroleum, ammonia and nitric acid at sites of Tamil Nadu Petroproducts Ltd., Mangalore Chemicals and Fertilisers Ltd. and Gujarat Narmada Fertiliser Corporation Ltd.

SHIP BUILDING

There are four major and three medium size shipyards in India. All these shipyards are in public sector. Apart from these, there are about 33 small shipyards in private sector which cater to domestic requirements for small craft. Maximum size of vessels that could be constructed in Cochin

Shipyard, Cochin and Hindustan Shipyard, Vishakhapatnam are 86,000 DWT and 45,000 DWT respectively. Cochin Shipyard Limited has launched first tanker of the series of three 86,000 DWT tankers for Shipping Corporation of India These are being constructed for the first time in the country. Small shipyards are geared up for meeting the country's requirements for fishing vessels. Four fishing vessels have been delivered so far for private entrepreneurs and 45 fishing vessels are under construction in various shipyards. National Ship Design and Research Centre is being established at Vishakhapatnam.

SHIPREPAIR

Of the total 15 dry-docks in the country, 11 are available for commercial shiprepair activities.

While dry-docks at Cochin and Vishakhapatnam can accommodate maximum size of one lakh DWT and 70,000 DWT respectively, other dry-docks can accommodate between 10,000 to 20,000 DWT range. In addition shiprepair facilities are being set up at Madras port by a private entrepreneur with two floating dry-docks

EIGHTH PLAN PROJECTIONS

Working Group on shipping, shipbuilding and shiprepair, lighthouses and lightships has projected a total requirement of Rs 13,889.92 crore for shipping sector during Eighth Plan period. The Group has recommended Rs 13,309 crore for acquisition of additional ships and training facilities. Total tonnage required to be acquired/ordered during Eighth Plan is 77.3 lakh DWT. The Group has also projected a requirement of Rs 537.96 crore for shipbuilding and shiprepair sector besides Rs 42.96 crore for lighthouses and lightships.

R AND D ACTIVITIES

Five R and D schemes at an estimated cost of Rs 56.15 lakh are currently under execution by various academic institutions.

HINDUSTAN SHIPYARD

The shipyard at Vishakhapatnam was set up in 1941 in private sector by Scindia Steam Navigation Company Ltd. Because of difficulties faced by owners, Government was requested to take over the shipyard and, accordingly, a new company *viz.*, Hindustan Shipyard Limited was incorporated in 1952. In 1962, the Shipyard became a cent per cent public sector enterprise. Thereafter, in 1971 shiprepair facilities were added besides various development programmes for augmenting installed capacity of the yard.

With the completion of Stage-II modernisation and expansion programme, capacity of the yard was to go up to the equivalent of 6.5 pioneer class vessels by 1989-90. The Shipyard has produced and delivered 99 vessels of different sizes and specifications *viz.*, dumb barges, bulk carriers, product carriers, passenger-cum-cargo vessels and high technology drill ship besides petrol supply-cum-support vessels in addition to offshore well-head-platforms. The Shipyard has already successfully completed and commissioned two offshore platforms in Bombay High for ONGC. Indian Navy/Coast Gaurd have placed orders for four offshore patrol vessels. While one of the vessels is at an advanced stage of outfittings, the second has already been launched in a record time.

HOOGHLY DOCK AND PORT ENGINEERS LIMITED

Hooghly Dock and Port Engineers Limited, Calcutta (HDPE) came into existence on 30 June 1984 as a new Government company with one of its objects to acquire the business of Hooghly Docking and Engineering Co. Ltd., one of the oldest shipyards in India. The Company comprises two working units in Howrah district of West Bengal, one at Salkia and another at Nazirgunge. Salkia Works construct various types of ships, passenger and other vessels, craft, dredgers, tugs, floating dry-docks, fishing trawlers, offshore platform supply-cum-support vessels for ONGC, multiple harbour vessels, lighthouses tender vessels for Department of Lighthouses and Lightships, etc This unit has an outfit at Kidderpore Dock Complex of Calcutta port for repairs of various types of ocean-going vessels and dredgers.

Nazirgunge Works is engaged in construction of fishing trawlers, fire floats, barges, mooring launches, grab hopper dredgers, etc., and repairs of different types of vessels besides general fabrication and machining jobs.

COCHIN SHIPYARD

Cochin Shipyard set up with Japanese collaboration is designed to have a dock for building ships up to 85,000 DWT and a repair dock to accommodate ships up to 1,00,000 DWT. The Shipyard has so far built and delivered five bulk carriers of 75,000 DWT each. It has orders on hand for three oil tankers of 86,000 DWT. The first tanker of this series was launched in November 1989 and the second one is under construction.

NAVIGATIONAL AIDS

Government looks after general navigational aids while states, port trusts and other agencies are responsible for local aids. However, under the Lighthouse Act, 1927, Government exercises general control over all aids through Department of Lighthouses and Lightships, which in turn maintains various navigational aids along the coast of India besides launches and HF/VHF radio telephone sets. There are among others 155 lighthouses, 12 lightbuoys, six fog signals, 14 radio beacons, 12 decca chains, one light vessel, 12 racons and 39 HF/VHF/RT sets. In Seventh Plan, Rs 33.07 crore had been provided for development schemes.

TRAINING INSTITUTIONS

There are three training establishments for merchant navy officers. *T.S. Rajendra* at Bombay imparts pre-sea training to navigation cadets. Lal Bahadur Shastri Nautical and Engineering College, Bombay conducts post-sea instrumental courses in navigation and engineering. Directorate of Marine Engineering Training at Bombay and Calcutta imparts training to marine engineering cadets.

INLAND WATERWAYS

India has about 5,200 km of major rivers, which are navigable by mechanised craft, but only 1,700 km are actually utilised. As regards canals, the available length is 4,300 km, but only a length of 485 km is suitable for mechanised craft of which only 33$^1/_2$ km being actually utilised. Important among navigable rivers are the Ganga, the Brahmaputra and their tributaries, the Godavari, the Krishna and the Mahanadi, the Narmada and the Tapti and their canals, backwaters and canals of Kerala, the Buckingham Canal in Andhra Pradesh and Tamil Nadu, the Cumberjua canal and the Mandovi and the Zuari rivers in Goa, and the network of tidal rivers in Sunderbans.

Inland water transport is a state subject. Development schemes are mostly taken up by states as Centrally-sponsored schemes. In Seventh Plan, a provision of Rs 225.73 crore had been made for development of inland water transport *i.e.*, Rs 155 crore in Central sector and Rs 70.73 crore in state sector. A provision of Rs 67 crore had been made for these schemes in Annual Plan 1989-90 against which an expenditure of Rs 47 crore was anticipated.

INLAND WATER TRANSPORT BODIES

Consequent upon the setting up of Inland Waterways Authority of India in 1986 under the IWAI Act, 1985, this Authority has been entrusted with responsibility for development, maintenance and management of national waterways. IWAI is also implementing the scheme of interest subsidy on loans obtained by inland water entrepreneurs for mechanisation of vessels, purchase of new vessels and mechanised boats from banks/financial institutions.

The Allahabad-Haldia stretch of the Ganga-Bhagirathi-Hooghly rivers and the Sadiya-Dhubri stretch of the Brahmaputra river have been declared as national waterways. IWAI has undertaken their development and maintenance for shipping and navigation.

Central Inland Water Transport Corporation, a Government undertaking set up in 1967 at Calcutta, operates river services carrying goods between Calcutta and Assam via Bangladesh. It is also operating river services between Haldia and Patna. Its other activities include shipbuilding and shiprepairing.

PORTS

There are 11 major ports in the country apart from about 139 minor working ports along the coastline of about 5,600 km. Major ports are the direct responsibility of Central government, while minor ports including intermediate ports fall in Concurrent list of the Constitution and are managed and administered by respective maritime state governments.

MAJOR PORTS

Kandla, Bombay, Marmugao, New Mangalore, Cochin and Jawaharlal Nehru Port of Bombay (a new port) are the major ports on west coast. Jawaharlal Nehru Port is equipped with modern facilities having machanised container berths for handling dry bulk cargo and service berths, etc. On east coast, Tuticorin, Madras, Vishakhapatnam, Paradip, Calcutta-Haldia are the major ports. All major ports are administered in accordance with the provision of the Major Port Trusts Act, 1963. Each major port has a board of trustees representing various interests connected with port operations and shipping industry.

Among major ports, Bombay handles maximum traffic. It is a natural harbour It handles over one-fifth of the total traffic of ports, bulk of which consists of petroleum products and dry cargo. Kandla is a tidal port. A free trade zone has been set up here. It handles all types of traffic consisting mainly of crude oil, petroleum products, fertilisers, foodgrains, salt, cotton, cement, sugar, edible oils, scrap, etc. Marmugao occupies the fifth position in terms of total quantum of traffic handled. Facilities for export of Kudremukh iron ore were specially developed at New Mangalore. The port handles fertilisers, molasses, petroleum products, edible oils, granite stones and all types of other general cargo. Cochin is a natural harbour. The traffic handled at this port comprises fertilisers, raw materials, petroleum products, general cargo, etc. Tuticorin handles mainly coal, salt, edible oils, foodgrains, sugar and dry cargo, and petroleum products.

Madras is one of the oldest ports on east coast. It handles the largest volume of traffic in general cargo, next only to Bombay. The traffic handled at this port consists mainly of petroleum products, crude oil, fertilisers, iron ore and dry cargo. Vishakhapatnam is the deepest port where an outer harbour has been developed for exporting iron ore and a berth has been constructed for crude oil and petroleum products as also a multi-purpose general cargo berth. The other traffic handled at this port consists of oils, fertilisers and dry cargo. Paradip handles iron ore and some quantities of coal and dry cargo. Calcutta is a riverine port handling diversified commodities. A new mechanised dock system at Haldia with provision for deep draft vessels downstream supplements the facilities available at Calcutta. Haldia has fully equipped coal handling, oil and containerised berths. The traffic handled at this port consists of coal, crude oil, petroleum products, fertilisers and other dry cargo.

Cargo handled at 11 major ports was to the tune of 1,464 lakh tonnes during 1988-89, which was 9.5 per cent higher than 1,337 lakh tonnes handled in 1987-88 and 14.2 per cent above the target of 1,282 lakh tonnes. Major increase was recorded in the traffic of petroleum, oil and lubricants (POL), coal, iron ore, fertilisers and fertiliser raw material and containerised cargo. Traffic in vegetable oils, sugar and newsprint declined marginally as compared to 1987-88.

Cargo handled at all the major ports except Calcutta and Kandla increased in 1988-89 over the previous year. In case of Calcutta and Kandla, there was a fall of 1.3 and 1.5 per cent respectively. Targets for 1988-89 were achieved in case of all the major ports—Madras port performed well by exceeding the target by 38 per cent followed by Vizag 34.9 per cent. Container traffic in 1988-89 recorded an increase of over nine per cent. About 56 lakh tonnes of containerised cargo were handled in 1988-89 as compared to 51 lakh in 1987-88. More than 50 per cent of container traffic continued to be handled at Bombay port.

MINOR AND INTERMEDIATE PORTS

Minor/intermediate ports are in Concurrent list of the subjects in the Constitution of India. State governments are responsible for management and development of these ports. Accordingly, allocation for their development is provided in respective state sector plans by Planning Commission. However, during Seventh Five Year Plan an allocation of Rs. 20 crore was made for development of two minor ports–Redi in Maharashtra (west coast) and Kakinada port in Andhra Pradesh (east coast). Kakinada port in Andhra Pradesh has been taken up by Asian Development Bank (ADB) for financing. Therefore, no Central assistance was given to this port in Seventh Plan. However, funds for development of port facilities in Andaman and Nicobar, Islands, Lakshadweep, etc., are provided in Central sector plan.

DREDGING CORPORATION OF INDIA

Dredging Corporation of India was set up in March 1976 and started its commercial operation from 1 April 1977. Since then, the Corporation has been rendering maintenance and capital dredging services to major ports, minor ports, shipyards, shipping harbours, navy, state governments, etc. At present the Corporation has a fleet of eight dredgers and other ancillary craft.

The Corporation has placed an order for construction of two trailer suction hopper dredgers with a yard in the Netherlands. These are expected to be delivered during September 1990 and March 1991 respectively.

The Corporation dredged a quantity of about 211.40 lakh cu m during 1988-89 against the available capacity of 226.76 lakh cu m.

KARWAR

Karwar port situated on west coast about 65 km south of Marmugao and 275 km north of New Mangalore is all-weather major port. It is acclaimed as one of the most natural ports. Because of its rich hinterland, actual traffic projections for the port are estimated to be 70 lakh tonnes in 1995-96, comprising mainly export of iron/manganese ore, granite blocks, agricultural, forest and marine products and import of fertilisers, rock phosphate, salt and other goods. With the proposed establishment of nuclear power project at Kaiga, development of a naval base and the proposed thermal power plant by NTPC and a petro-chemical complex near this port, its traffic potential is likely to increase further. Hence this port is being developed as an all-weather port in stages.

CIVIL AVIATION

ORGANISATION

A number of agencies are involved in providing civil aviation services in the country. While Air India, Indian Airlines, Vayudoot and Pawan Hans provide air services, infrastructural facilities are provided by Directorate General of Civil Aviation (DGCA), International Airports Authority of India (IAAI) and National Airports Authority (NAA). Ministry of Civil Aviation is responsible for formulation of national policies and programmes relating to development and regulations of civil aviation including provision of aerodromes and regulation of air traffic and carriers, passengers and goods by air. It also advises on implementing programmes for orderly growth and expansion of civil air transport.

India has bilateral air service agreements with 59 countries. In addition to Air India and Indian Airlines, 42 foreign airlines are operating 257 services to/through India. There are 815 aircraft including 112 gliders in India with current certificate of airworthiness. Total number of valid air crew licences at the end of 1988 was 8,519, it came down to over 6,000 in 1989. The country has 25 flying clubs/schools or stations, of which 18 are managed privately and seven by state governments. In addition to one Government gliding centre at Pune, there are seven gliding clubs and seven gliding wings of flying schools.

DIRECTORATE GENERAL OF CIVIL AVIATION

Directorate General of Civil Aviation is the main regulatory organisation responsible for enforcing civil air regulations, air safety and airworthiness. It is responsible for (i) regulation of air transport services to/from/within India; (ii) formulation and implementation of standards of airworthiness applicable to all civil aircraft registered in India; (iii) certification of aircraft operators and licensing of air crew and airports; (iv) investigation of air accidents and incidents, and (v) rendering advice on matters relating to air transportation and processing of aviation legislation. DGCA also coordinates all requlatory functions with International Civil Aviation Organisation.

BUREAU OF CIVIL AVIATION SECURITY

Bureau of Civil Aviation Security is responsible for formulation of a national civil aviation security programme and to ensure its application to airports from where scheduled flights operate. It has four regional offices at Delhi, Bombay, Calcutta and Madras, besides its headquarters in New Delhi.

DIRECTORATE OF AGRICULTURAL AVIATION

Directorate of Agricultural Aviation is responsible for conducting aerial operation for fighting locust invasion and breeding, protecting various crops from pests and diseases and aerial seedings.

This Directorate functioned under Ministry of Agriculture till 27 July 1987 when its administrative control was transferred to Ministry of Civil Aviation.

COMMISSION OF RAILWAY SAFETY

Commission of Railway Safety is a statutory body set up under the Indian Railways Act to monitor observance of safety standards and safe working of railways. The Commission was separated from Railway Board in 1941 and currently functions under Ministry of Civil Aviation. Besides its headquarters at Lucknow, it has 10 circles. Main functions of the Commission include physical inspection of new railway lines, extensions, doublings, electrifications, etc., and authorising them for public carriage of passengers. The Commission is also responsible for conducting inquiries into serious rail accidents. It advises on the running of new types of rolling stock, introduction of higher speed or longer trains, besides according sanction to modifications to existing infrastructure and assets.

INTERNATIONAL AIRPORTS AUTHORITY OF INDIA

International Airports Authority of India was set up on 1 February 1972 under the International Airports Authority Act, 1971, with its headquarters at Delhi. The Authority is responsible for providing services and facilities for efficient air transport operations at four international airports *viz.*, Bombay, Delhi, Calcutta and Madras. Its responsibilities also include planning, construction, maintenance of terminal buildings, airfield-pavements and providing visual ground aids, passenger and cargo handling facilities, airport fire services, etc.

During 1988-89, the four international airports handled 196.53 lakh passengers and 40,43,000 tonnes of cargo.

IAAI is developing a new international terminal at Calcutta airport with an estimated outlay of Rs 19.58 crore and designed for a peak hour handling capacity of 1,425 and annual handling capacity of 7.05 lakh passengers. It is expected to be completed by May 1992.

NATIONAL AIRPORTS AUTHORITY

National Airports Authority formed under the National Airports Authority Act, 1985 started functioning from 1 June 1986. Main functions and responsibilities of the Authority are: (i) management of civil aerodromes, civil enclaves and aeronautical communication stations: (ii) planning, development, construction and maintenance of runways, associated aircraft movement areas and passenger-handling buildings on domestic civil aerodromes and civil enclaves; (iii) planning, procurement, installation and maintenance of radio navigational aids, communication systems, visual and safety services and security systems and domestic airports, and (iv) provision of air traffic control and radar services for ensuring safety of aircraft operations for the entire Indian airspace including establishment of air routes, etc.

The Authority has four regional offices at Delhi, Bombay, Calcutta and Madras. It manages 88 domestic aerodromes and 28 civil enclaves. Its training centre at Allahabad imparts training facilities in various operational cadres like ATC, Communication Radars, etc. It has a fire services training school at Narayanpur near Calcutta for imparting training and refresher courses in fire-fighting and rescue services.

INDIRA GANDHI RASHTRIYA URAN AKADEMI

The Indira Gandhi Rashtriya Uran Akademi was set up as an autonomous body under Ministry of Civil Aviation. The Akademi is located at Fursatganj, Rae Bareli, Uttar Pradesh. Ground training at the Akademi commenced in June 1986 and flying training from September the same year. Main objectives of the Akademi are: (i) creation of an infrastructure for bringing about desired improvement in the training of pilots which, in turn, would result in qualitative improvements in the capabilities of commercial pilots; (ii) creation of facilities for the training of helicopter pilots; (iii) provision of better qualified pilots to the national carriers, and (iv) catering to needs of state governments. The Akademi has a fleet of 10 aircraft, two Robinson R-22 Beta helicopters and three simulators.

DOMESTIC AIR SERVICES

INDIAN AIRLINES

Indian Airlines was set up under the Air Corportations Act, 1953 with its headquarters at Delhi and four regional offices at Bombay, Calcutta, Delhi and Madras. Indian Airlines is primarily responsible for providing air services for passengers, cargo and mail on internal network of the country. It is also providing similar services to eight neighbouring countries *i.e.*, Afghanistan, Pakistan, Thailand, Singapore, Sri Lanka, Maldives, Nepal and Bangaladesh. Its operations cover 67 stations including 10 abroad. It owns a fleet of 58 aircraft. Indian Airlines carried 101.10 lakh passengers during 1988-89.

VAYUDOOT

Vayudoot was incorporated on 20 January 1981 mainly to meet air transport requirement of the peoploe of north-eastern region. The Company started operations on 26 January 1981 by airlinking seven stations. Its operational bases are at Delhi, Bombay, Calcutta, Madras, Hyderabad, Bhopal and Guwahati. Vayudoot is also responsible for connecting areas, important centres of trade, commerce and tourism, not covered by Indian Airlines. It has at present 105 stations on its operational network with a fleet of 21 aircraft The courier operatins of Vayudoot at present cover 102 major cities of the country.

PAWAN HANS

Pawan Hans was incorporated under the Companies Act, 1956 on 15 October 1985 under the name Helicopter Corporation of India Ltd. which was changed to Pawan Hans Ltd. from 5 May 1987, with headquarters at Delhi. It has two main regions *i.e.*, northern and western at Delhi and Bombay respectively. The Company has its own training school in Delhi to train pilots and technicians. The Company was formed primarily to provide helicopter support services to Oil and Natural Gas Commission for their offshore/onshore activities. It also operates schedule/non-schedule services of helicopters to inaccessible areas and terrains.

INTERNATIONAL AIR SERVICES

AIR INDIA

Air India was established under the Air Corporations Act, 1953 and has its headquarters at Bombay. It inaugurated its first international sevice to London in June 1948 with constellation aircraft. Since then, it has expanded its route network to cover five continents and operates services to USA, Europe, USSR, Africa, West Asia, East Asia and Australia. The Corporation owns a fleet of 21 aircraft. It carried 21.23 lakh passengers during 1988-89.

HOTEL CORPORATION OF INDIA

Hotel Corporation of India is a wholly-owned subsidiary of Air India and was incorporated on 8 July 1987. The Company owns and operates four five star hotels and two flight kitchens–Centaur Hotel, Bombay Airport; Centaur Hotel, Juhu Beach, Bombay; Centaur Hotel Delhi Airport, and Centaur Lake View Hotel, Srinagar and two flight kitchens–Chefair Flight Catering, Bombay and Chefair Flight Catering, Delhi. The Company also operates Centaur Hokke Hotel at Rajgir in Bihar as a joint venture with Hokke Club of Japan.

OPEN SKY POLICY

Government has decided to declare 'Open Sky Policy' relating to cargo flights without any time limit until further orders. Earlier it had extended this policy up to 1992.

Government has been following this policy since 1987 through which both scheduled and non-scheduled operators, both Indian and foreign are allowed to operate ad hoc cargo flights out of India during the peak period from January to July to tide over capacity constraints. They are also permitted to bring cargo on their inward flights.

TOURISM

Tourism is now recognised as an industry generating a number of social and economic benefits. It promotes national integration and international understanding, creates employment opportunities and augments foreign exchange earnings. Tourism also gives support to local handicrafts and cultural activities.

International tourism in India has grown substantially over the last three decades. Number of foreign tourist arrivals (excluding Pakistan and Bangladesh) increased from 12,39,992 in 1988 to 13,37,232 in 1989 achieving an annual growth rate of 7.8 per cent. Including those from Pakistan and Bangladesh, total number of foreign tourists in 1987, 1988 and 1989 was 14,84,290; 15,90,661 and 17,36,093 marking a percentage growth of 2.3, 7.2 and 9.1 respectively.

During the decade 1961 to 1970, average rate of growth was about 8.4 per cent per annum. In the decade 1971-80, India experienced an annua growth rate of 12 per cent per annum. Seventh Plan envisaged an annua growth rate of seven per cent. However, actual growth rate of about 10 pe cent achieved during Seventh Plan period has surpassed the anticipate target. India's share in world tourist market at the beginning of Seventh Plan was only 0.3 per cent, which subsequently improved to 0.4 per cent in 1988.

Domestic tourism plays a very big role in national objective of promoting social and cultural cohesion and national integration. Its contribution t generation of employment is also very high. Seasonal pattern of domesti tourism differs from that of foreign tourism.

Main task for tourism sector in Eighth Plan would be development of overall tourism needs on a coordinated basis where all sectors of industry get involved in a single concerted drive to enhance the image of India as a tourist destination.

To promote India as the destination of 90s, 18 circuits have been identified. These circuits are connected with the existing ones. Infrastructure facilities at destinations related to these circuits are proposed to be strengthened.

To help ITDC attract more foreign tourists in the year 1991 which has been declared as 'Visit India Year', it has been decided to allow the Corporation to have marketing and management development collaboration with M/s Redisson Hotel Corporation of USA, a fast growing international hotel chain.

ORGANISATION

Several agencies in India are involved to develop and promote tourism at national and international levels. The agencies are: Department of Tourism, Directorate General of Tourism, Indian institute of Tourism and Travel Management, National Council for Hotel Management and Catering Technology and India Tourism Development Corporation Ltd.

Department of Tourism is responsible for promotion of India as a tourist destination, development of tourism infrastructure and facilities in the country. It also performs regulatory functions in the field of tourism. There are four regional offices in Delhi, Bombay, Calcutta and Madras. These offices supervise the working of other tourist offices at Agra, Bangalore, Bhubaneshwar, Cochin, Goa, Hyderabad, Jaipur, Khajuraho, Port Blair and Varanasi. There is also a sub-regional tourist office in north-easten region at Guwahati which supervises the working of tourist offices at Shillong, Imphal and Itanagar. In addition, there is Gulmarg Winter Sports Project office in Srinagar and Indian Institute of Skiing and Mountaineering at Gulmarg. Tourist offices are also located in Bangkok, Brussels, Chicago, Dubai, Frankfurt, Geneva, Kuala Lumpur, Kuwait, Kathmandu, London, Los Angeles, Milan, New York, Paris, Singapore, Stockholm, Sydney, Tokyo, Toronto and Vienna.

India Tourism Development Corporation (ITDC), a public sector undertaking established in October 1966, is responsible for creation, development and expansion of tourism. It provides varied services to tourists by way of accommodation, catering, transport, entertainment, shopping facilities, conventions, etc. It also produces, distributes and sells tourist publicity material and renders consultancy services in the field of tourism both in India and abroad.

ITDC operates the chain of Ashok hotels, beach resort accommodation, tourist transport services, duty free shops, a travel agency named Ashok Travels and Tours, sound and light shows and provides consultancy and management services.

Indian Institute of Tourism and Travel Management (IITTM) was set up in January 1983 with its registered office at New Delhi. It is designed as an institute for offering different level academic courses in the field of tourism and travel management and related areas. National Committee on Tourism has estimated annual requirement of trained manpower resources for tourism industry from 20,000 to 23,000. Besides initiating Post-graduate lavel courses, IITTM is embarking upon a series of alternative educatiion courses for supervisory and grass root level workers of the industry. It is the measure of success that universities in 20 developing countries are sending their Faculty for being trained in IITTM course.

National Council for Hotel Management and Catering Technology with its headquarters in New Delhi, acts as an apex body to coordinate training and research in hotel and catering management. It is the main agency for planning and monitoring the activities of 12 institutes of hotel management and 12 foodcraft institutes and ensures uniformity in academic standards and procedure for selection and admission of candidates for various courses conducted by these institutes.

ACCOMMODATION AND OTHER FACILITIES

Department of Tourism has constructed forest lodges in the bird sanctuary at Bharatpur and wildlife sanctuaries at Kaziranga, Sasangir, Jaldapara, Kanha and Dandeli. ITDC is managing the forest lodge at Bharatpur and those at Kaziranga, Sasangir, Kanha, Kisli, Jaldapara and Dandeli are being run by state tourism development corporations.

Forest lodges at Betla, Dhangari, Ranthambore, Simlipal, Bandavgarh, Neyyar Dam Sanctuary, Nandankanan Sam Desert National Park and Manas wild life sanctuary, Kuba Huts in Enjal (Gujarat) and floating accommodation for Sunderbans are at various stages of construction. Facilities have also been provided for viewing wild life on boats, elephants and minibuses at sanctuaries in Bharatpur, Kaziranga, Manas, Kanha National Park, Betla, Nandankanan, Lamjao Park, Jaldapara, Corbett, Dudhwa, Ranthambore, Mudumalai Wynad Perimbiculam and Neyyar Dam sanctuaries.

For providing cheap and moderate accommodation for pilgrims at places of religious importance, a society called *Bhartiya Yatri Avas Vikas Samiti* was set up in 1978. Main objectives of the Samiti are to construct *yatrikas;* expand, maintain, promote existing and new *dharamshalas/sarais/musafirkhanas*, and other similar institutions in the country. The Samiti has so far constructed yatrikas at Amarkantak, Chitrakoot, Bidar, Nanmehar, Kampil and Ankaleshwar. Yatrikas are also under various stages of construction at Maheshwar, Puri, Karaikal, Vrindavan, Gangasagar, Mayapur and Dwarkaji.

To promote tourist traffic, regulations relating to currency exchange controls and customs have been liberalised. While visas are required by visitors from all countries, landing permit is given to organised groups handled by approved travel agents. Concessional tickets are issued by the Railways for round-trip journeys and circular tours; special concessions are given to students. *Indrail* pass facilities are available for foreign tourists and Indian residents abroad against payment in convertible currencies. Indian Railways and Rajasthan State Tourism Development Corporation have jointly organised *Palace On Wheels* train in order to promote places of tourist interest in Rajasthan.

The Railways propose to replace the existing coaches of this train by new ones by October 1991 at an estimated cost of Rs. 6.24 crore. The existing ones which were scheduled to be in operation by 1990 will be made fit to run up to 1990-91. Department of Tourism has been actively promoting international charters to generate tourist traffic from overseas market segments.

The Department also constituted a task force for identification and strengthening of infrastructure at Buddhist centres in states other than Uttar Pradesh and Bihar. Government of Andhra Pradesh has already submitted a proposal for seeking assistance from Overseas Economic Cooperation Fund of Japan to develop Buddhist centres. Japan has, however, clarified that funds for development of Buddhist centres in other states would be considered only after the completion of ongoing projects of Uttar Pradesh and Bihar.

Foreign exchange earnings from tourism during 1986-87, 1987-88 and 1988-89 were Rs 1,607 crore, Rs 1,890 crore and Rs 2,103 crore (provisional) respectively. There has been no decline in earnings from tourism during the last three years.

23 Communications

POSTAL system in India dates back to 1837 when postal services were opened to public. First postage stamp was issued in Karachi in 1852, though it was valid only in Sind. Postal Department was set up in 1854 when about 700 post offices were already in existence. Money order system was introduced in 1880. Post Office Savings Bank came up in 1882 and Postal Life Insurance in 1884. Railway Mail Service began in 1907 and Airmail Service in 1911.

Attainment of independence marked a watershed in development of postal services whose role came to be recognised increasingly as an essential infrastructure of development. After independence, this development was marked by modernisation in stages. Year 1972–25th Anniversary of India's independence–was commemorated by the adoption of a six-digit postal index number code, popularly called PIN. Benefit of air-lift of the entire first-class mail was introduced on 1 April 1949. Since then several milestones such as recorded delivery, speed post and computerisation of postal operations, are witness to dynamism of modern postal service.

For operational purposes, the country is divided into 19 postal circles under Postal Services Board which came up on 31 December 1984. Department of Posts also performs agency functions such as PO Savings Bank and Postal Life Insurance.

POSTAL SERVICES

There were 1,47,102 post offices (16,264 in urban and 1,30,838 in rural areas) on 1 January 1990, including two mobile post offices in Calcutta and one in Delhi. A post office serves nearly 4,700 persons and over 22 sq km area.

For opening a post office, a group of villages having a *gram panchayat* or village council is identified. Within this group the main village is selected for locating the post office. Aggregate population of the group should be 1,500 or more in hilly, backward and tribal areas and 3,000 or more in other rural areas. Out of 5,79,132 villages, 3,71,450 had a post office within a distance of 5 km.

MAIL CIRCULATION

Mail has increased enormously due to industrialisation and increase in population and rate of literacy. It is carried both by surface and air. For surface mail, various modes such as trains, roads, boats, camels, horses and cycles are used. All principal cities connected by air are served by direct air mail and other cities subsequently by surface. All inland letters, postcards, registered letters and money orders are normally carried by air without surcharge. 462 crore pieces of mail were handled in 1989-90.

SPEED POST

Under Speed Post Service introduced on 1 August 1986, articles are delivered within a definite time frame, with 'money back guarantee' for any service defect. It was initially introduced in seven cities. It now covers 57 cities including Delhi, Bombay, Madras, Calcutta, Bangalore, Ahmadabad, Pune, Hyderabad, Kanpur, Cochin, Indore, Vadodara, Guwahati, Jaipur and Surat.

SPEED POST MONEY ORDER

Speed Post Money Order was introduced on 14 May 1988 to provide a guaranteed and time-bound money transfer facility. It ensures payment of cash at doorstep of the payee within 24/72 hours depending on destination. A nominal fee of Rs 5 is charged in addition to normal commission. Such money orders are paid on Sunday and holiday on an extra charge of Rs 3 per money order. This service is available in all 56 speed post cities.

PHILATELY

Department of Posts has been issuing special/commemortive postage stamps since 1931. In 1988, 57 such stamps including a set of four stamps on 'Himalayan Peaks', two stamps on 'Freedom Forty Swaraj', two stamps on 'Sports-88', two stamps on 'Jawaharlal Nehru' and four stamps on 'India-89' (International philatelic exhibition). This year the Department brought out a special two colour postage stamp on Ho Chi Minh, Father of Vietnam.

FOREIGN MAIL

India is member of Universal Postal Union (UPU), Asian Pacific Postal Union (APPU) and Conference of Commonwealth Postal Administration (CCPA). These organisations aim at extending, facilitating and improving postal relations between member countries. Reduced postage rates are applied to letters and postcards exchanged by surface between member countries of APPU.

India has direct postal links with almost all countries . Mail for some countries is exchanged through a third country. Foreign mail originating in India is generally carried by sea and air. All expedited mail service known as International Speed Post Service, was introduced on 1 August 1986 to selected destinations. This service is available to 39 countries. It is a time-bound delivery service guaranteeing delivery within a stipulated time frame, failing which 'money back guarantee' operates. This service will be progressively extended to more destinations. Besides the country has inward money order service with 32 nations and outward service to Burma, Bhutan and Nepal.

MERCHANDISED SPEED POST

International Merchandised Speed Post Service was introduced from 15 April 1988. All articles other than those for which insurance is compulsory can be sent as merchandise. This service is available for 19 countries.

PIN CODE

To help facilitate efficient and correct handling of increasing volume of mail a numerical postal address code known as the Postal Index Number (PIN) was introduced in 1972. The code has six digits which helps identify and locate every departmental delivery post office excluding branch post offices. First digit indicates region, second sub-region and third sorting district while last three digits indicate a particular delivery post office in the areas served by the sorting district.

POST OFFICE SAVINGS BANK

Post Office Savings Bank is the largest savings bank with a network of 1,45,238 post offices. On 31 March 1989, outstanding balances in all forms of national savings in post offices amounted to Rs 33,897.04 crore. Gross and net collection during 1988-89 in Post Office Savings Bank was worth Rs 12,569.03 crore and Rs 5,496.44 crore respectively. Net collection in 1989-90 was Rs 7,700 crore.

POSTAL LIFE INSURANCE

Postal Life Insurance (PLI) came into being on 1 February 1884 as a welfare measure for government employees. After independence, along with a number of welfare schemes for such employees, scope of PLI was extended from time to time. At present, PLI benefits are extended to various categories of employees like: (i) all Central and state government employees; (ii) employees of government financial institutions; (iii) local fund/local body employees; (iv) employees of universities/*kendriya vidyalayas*/aided educational institutions; (iv) employees of nationalised banks; (vi) employees of Central/state government public sector undertakings, and (vii) regional rural bank employees.

In 1988-89, PLI reached a significant milestone with 14.50 lakh policies for a total sum assured of Rs 1,711.48 crore.

MECHANISATION

With a view to improving quality of service and providing better customer service at counters of post offices, the Department has introduced several new devices. There are 37,787 franking machines in use in the country, licensed both at private premises of large mailers and in post offices. Because of phenomenal increase in mail particularly commercial, the Department has imported 60 highspeed franking machines and installed them in metropolitan post offices. These machines have been of great advantage and have resulted in significant increase in postage revenue other than sale of postage stamps.

COMPUTERISATION

The first computer was installed in Bangalore GPO in 1986 to handle PLI business. Another computer has been installed in Madras for money order pairing work, while at Delhi it is used for money pairing work as well as international air mail accounting. Savings bank control operation in Delhi circle has also been computerised. Installation of an Integrated Mail Processing System in Bombay has been taken up in collaboration with Computers Maintenance Corporation (CMC).

TELECOMMUNICATIONS

Telecommunication services were introduced in India soon after invention of telegraphy and telephone. First telegraph line between Calcutta and Diamond Harbour was opened for traffic in 1851. By March 1884, telegraph messages could be sent from Agra to Calcutta. By 1900, telegraph and telephone had started serving Indian Railways. As in case of telegraph, telephone service was also introduced in Calcutta in 1881-82, barely six years after invention of telephone. First automatic exchange was commissioned at Shimla in 1913-14 with a capacity of 700 lines.

However, development of telecommunications before independence was rather slow. At the time of independence Government had a rudimentary telecommunication system of world standard. In April 1948, India had only 321 telephone exchanges with about 82,000 working connections. There were only 338 long distance public call offices and 3,324 telegraph offices. Growth of telecommunication service gained momentum after independence and by March 1990 there were about 14,300 telephone exchanges, 52.74 lakh lines and 45.91 lakh working connections. Number of telephone stations increased from 1.68 lakh to 52.04 lakh. Indian Telecom network has thus recorded a tremendous growth of more that 45 times in last 43 years since 1947. Detailed growth in respect of various items and activities since 1948 is shown in table 23.1.

TELECOM SERVICES

LOCAL

Equipped capacity of telephone exchanges was 52.74 lakh lines with 45.91 lakh working connections and registered waiting list of about 17.40 lakh as in March 1990. Eighth Plan envisages expansion of telephone network by 52 lakh new connections and provision of connections on demand in exchanges of less than 5,000 lines.

RURAL

As on 31 March 1989, there were 10,455 telephone exchanges in rural areas with an equipped capacity of 5.7 lakh lines and 4.3 lakh working

TABLE 23.1 GROWTH OF TELECOMMUNICATIONS

Item	As on 1 April					As on 31 December
	1948	1985	1986	1987	1988	1989
1. Telephone exchange (Numbers)	321	10,712	11,480	12,084	12,930	13,861
2. Local exchange capacity (Lakh lines)	1.00	33.07	36.65	39.89	43.29	49.35
3. Direct working connections (DELs) (Lakh lines)	0.82	28.98	31.65	34.88	38.0	43.48
4. Telephone stations (Lakh)	1.68	37.74	40.57	44.20	47.56	52.04
5. Long distance public telephones (Numbers)	388	17,459	24,025	25,641	26,507	28,351
6. Local PCOs. (Numbers)	Nil	18,335	19,869	44,248	49,053	56,933
7. Trunk automatic exchanges (TAXs) (Numbers)	Nil	29	31	34	45	50
8. TAX capacity (Lines)	Nil	88,770	91,710	98,770	1,14,670	1,29,370
9. Trunk manual (Numbers)						
(i) exchanges	250	1,586	1,592	1,997	1,992	2,011
(ii) boards	250	8,098	8,315	8,460	8,570	8,713
10. Stations connected to TAXs (Numbers)	Nil	267	338	403	491	781
11. STD routes (Point to Point) (Numbers)	Nil	156	176	208	226	238
12. International Subscriber Dialling						
(i) No. of countries connected	Nil	6	11	20	176	178
(ii) No. of cities having ISD	Nil	4	76	400	491	778
13. Long Distance Network						
(a) Coaxial cable (Route km)	Nil	18,263	19,029	19,285	21,085	23,234
(b) Microwave (Route km)	Nil	21,226	22,537	25,838	27,923	30,853
(c) Satellite stations	Nil	31	32	32	52[1]+12[2]	61[1]+17[2]

TABLE 23.1 (*Continued*)

Item	As on 1 April					As on 31 December
	1948	1985	1986	1987	1988	1989
14. Public telegraph offices (Numbers)	3,324	35,251	37,424	36,235	37,729	35,576
15. Telex exchanges (Numbers)	Nil	187	209	220	244	311
16. Telex exchange capacity (Lines)	Nil	39,094	40,675	43,948	47,059	49,554
17. Telex Subscriber Connections (Numbers)	Nil	26,253	30,180	34,044	37,464	43,575
18. Effective metered call units (Telephone) (Lakh) during the preceding year	Nil	1,20,690	1,38,240	1,64,840	1,93,340	1,05,260[3]
19. Number of telephone trunk calls during the preceding year (Lakh)	400	2,020	2,140	2,150	2,091	1,055.2[3]
20. Effective metered telex calls (Thousand)	Nil	2,09,462	2,81,341	3,58,349	3,59,783	2,11,377[3]
21. Telegraph messages booked during the preceding year (Lakh)	270	651.2	595.8	608.6	647.5	318.45[3]
22. Net fixed assets (Rs crore) (1987 and 1988 excluding MTNL)	NA	3,728	4,418	4,141	5,009	6,429
23. Gross revenue (Rs crore)	NA	1,191	1,309	1,230	1,701	2,359
24. Net income (surplus) during the preceding year (Rs crore)	NA	257	197	12	454	823

1. Fixed.
2. Mobile.
3. Up to September 1989.
4. Up to March 1989.

NA: Not available.

connections. Some 23,316 public telephones were extended through long distance telephone lines. Small electronic automatic exchanges are being installed to improve telecommunication system in rural areas. Greater use of more reliable radio systems (VHF, UHF and multi-access rural radio systems) instead of overhead lines has been envisaged.

Atleast one telephone will be provided in an important place of 5 km hexagonal area. The whole country has 48,888 hexagons of which 32,574 have been covered so far. Government has also decided to bring all panchayats (about 2.21 lakh) into telecommunication network–1,87,393 in Eighth Plan and the rest in Ninth Plan.

LONG DISTANCE

All state capitals are connected to Delhi on subscriber dialled long distance network. It comprises 50 trunk automatic exchanges (TAXs) with 810 stations connected to it. During Eighth Five Year Plan 1,700 more places are to be provided with this facility. Out of these TAXs, 25 are Penta Conta, 21 digital electronic and four SPC electronic type Presently 778 cities are having National Subscriber Dialing facilities Besides point-to-point STD is available on 238 routes, also connecting 385 of 462 district headquarters.

INTERNATIONAL TELEPHONE SERVICE

India's first intercontinental telephone exchange was commissioned in 1973. International Direct Dialled (ISD) telephone service was first introduced from Bombay to UK. Now susbcribers from 778 cities can dial directly to 178 countries.

LONG DISTANCE TRANSMISSION

Long distance telecommunication network has 25,000 route km of coaxial cable and 33,000 route km of microwave media. There are 83 satellite stations for long distance telecommunication service.

NEW SERVICES

The Department has a plan to introduce new services in Eighth Five Year Plan period. Some important ones are: (i) videotex-pages of information (TAX and Notional) has been made available to subscribers through special terminals. Proposal to introduce videotex service at Delhi on trial basis to assess 'demand type' of services required, potential information providers etc.; (ii) electronic mail-electronic mail system allows point-to-multi-point communication using electronically transmitted messages which get stored in 'Mail Boxes' and can be retrieved by people after they have satisfied normal security and access features. It is proposed to provide electronic mail computer and terminals for Bombay, Delhi, Calcutta and Madras in the beginning; (iii) video conferencing-this service is proposed to be started on trial basis in four metro cities in initial stage; (iv) radio paging-this service provides one way communication to subscribers by means of giving alert signal through pocket size radio receiver called 'Pager' where message can be stored. This is very useful for persons normally on the move like doctors, businessmen, etc. This system with an initial capacity of 5,000 lines, is to be installed at Bombay and after that in other metro and important cities, and (v) mobile telephone-this system provides for communication while on the move by means of radio link between subscriber and telephone exchanges. A system of this type, IMTS is working in Delhi (Total 138 as on 7 May 1990). A tender has been floated to enhance its capacity from eight to fifteen channels, including provision of additional equipment. In addition 200 mobile telephone sets have also been ordered. This service has been found extremely popular. A system based on cellular mobile technology is to be tried out in Bombay in Eighth Five Year Plan.

The salient features of modernisation plans of telephone exchanges are: (i) to convert entire switching capacity to be added in the Plan period to electronic type; (ii) replacement of all manual exchanges by modern ones, and (iii) replacement of worn-out and life-expired electro-mechanical exchanges by electronic ones.

TELECOM QUALITY ASSURANCE

Telecom Quality Assurance (TQA) Circle was formed in 1986 to deal with all matters relating to quality of telecom equipment and stores to DOT. It acts as a supporting unit of procurement wings of the Department in ensuring that proper care is taken of quality and reliability of telecom products. TQA circle with its headquarters at Bangalore has 40 QA centres all over the country.

TQA circle is assisted in its work by two apex laboratories *viz.*, Component Approval Centre Telecom (CACT) and Telecom Testing Laboratory (TTL) both at Bangalore. CACT has sophisticated facilities for conducting climatic and environmental tests, failure analysis and measurements. TTL conducts tests on telecom products like line and cable material, power plants, batteries, protective devices, instruments, etc. A System for Component Reliability Analysis and Measurement (SCRAM) in CACT is operational since 1987.

In 1988-89, value of stores accepted by TQA circle was Rs 1,100 crore. TQA circle issues type approval certificates and holds quality assurance committee meetings with various telecom equipment manufacturers for sorting out quality problems.

TQA circle is a repository of feedback complaints from field units. Of 715 feedback complaints received in 1989-90, 516 were cleared. It continues to place emphasis on training for quality appraisal. Three UNDP seminars and fourteen in-house seminars were conducted during the year. It has also made its contribution in evaluation of new equipment. Eighteen such evaluations were completed during the year and seventeen more are in progress.

TQA circle has set itself the objective of moving away speedily from customer inspection philosophy to quality assurance philosophy. It has encouraged manufacturers to qualify themselves under Approved Inspection Scheme. With active support of Telecom Commission, TQA circle has been able to assist telecom equipment manufacturers in enhancing quality of their products

TELECOM FACTORIES

There are five departmental factories under this Department known as telecom factories. They manufacture a variety of equipment and 'Line Stores' to meet Department's requirements to some extent Some important ones are local Payphone (CBT), DP boxes, IDC type CT boxes, sockets, telephone poles, microwave towers, etc.

The Organisation has undertaken various modernisation programmes like manufacture of IDC version of welded telephone poles, modern galvanising plant and foundary plant which have effective control systems for pollution control. Turnover in 1988-89 was worth Rs 48 crore. Target for 1989-90 was fixed at Rs 65 crore

TELECOM MISSION

Having recognised telecommunications as an essential infrastructure and a field of vital importance for country's socio-economic development, Telecom Mission popularly known as 'Mission Better Communication', was launched in 1986. It aimed at improving customers' satisfaction in time-bound way. For improvement at a fast pace focus was laid on some important activities in areas like quality of service, accessibility in urban and rural areas, modernisation of telegraph services, provision of reliable and stable telcom facilities in rural, hilly and tribal areas, etc. To keep pace with technology, a major programme of setting up a national digital network has been undertaken with a beginning made by commissioning the optical fibre link between Ahmadabad and Vadodara.

A multi-pronged approach including induction of equipment incorporating modern digital technology, replacement of fault-prone worn-out equipment, computerisation of various customer services and improved staff response to problems of customers, has been designed. Significant improvement in quality of service is already visible following monitoring of 'service indicators'. There are 81 local digital electronic exchanges in Delhi, Bombay, Calcutta and Madras

WIRELESS PLANNNING AND COORDINATION WING

Wireless Planning and Coordination Wing (WPC) established in 1952, is a radio regulatory authority responsible for coordination and regulation of radio spectrum usages in the country. It is nodal agency for all matters concerning International Telecommunication Union (ITU), a specialised agency of United Nations for all telecommunication matters and Asia Pacific Telecommunity (APT), an inter-governmental organisation of the region. WPC assisted by its monitoring organisation performs all functions relating to planning, coordination, assignment, regulation and administration of the uses of radio frequencies in India; clears sites for installation of wireless stations, and issues licences for establishment, maintenance and working of wireless stations in India, etc., under the Indian Telegraph Act, 1885. It is responsible for all matters concerning assignment of frequencies and positions in Geostationary Satellite Orbit (GSO) for communication satellite systems and necessary coordination in this regard both at national and international levels. It also conducts examinations to award certificates of proficiency for aeronautical and maritime mobile services and arranges SACFA meetings.

MONITORING ORGANISATION

Monitoring Organisation has a network of monitoring stations to support the work of frequency management and implementation of radio regulations. Twenty one such stations are functioning at Ahmadabad, Ajmer, Bangalore, Bombay, Bhopal, Calcutta, Darjiling, Delhi, Dibrugarh, Goa, Gorakhpur, Hyderabad, Jalandhar, Madras, Bangalore, Nagpur, Ranchi, Shillong, Srinagar, Trivandrum and Vishakhapatnam.

Four microwave monitoring units are also functioning at Bombay, Delhi, Madras and Calcutta. Five special units at Bombay, Calcutta, Delhi, Madras and Hyderabad investigate quantum and sources of man-made radio noise which affects radio communications and suggest remedial measures against such radio spectrum pollution. Ten inspection units at Ajmer, Bangalore, Bombay, Calcutta, Delhi, Hyderabad, Jalandhar, Madras, Nagpur and Shillong carry out regionwise inspection of licensed and authorised radio stations to ensure adherence to and conformity with radio regulatory stipulations.

RESEARCH AND DEVELOPMENT

TELECOMMUNICATION ENGINEERING CENTRE

Telecommunication Engineering Centre (TEC) formed after reorganisation of erstwhile Telcommunication Research Centre (TRC) continues to provide engineering support to Department of Telecommunications. TEC in its switching wing handles on-going modernisation projects of telegraph networks, bi-scriptual electronic teleprinter providing telematic services, computerised fault repair assistance system development, high speed PSTN access, pilot studies for premium data services and network planning and optimisation study projects. On transmission side, TEC is associated with various projects concerning field trial, propagation studies, EMI/EMC studies and experiments, studies on land mobile satellite system and technical advice on INSAT system and inter-satellite system interference coordination.

UNDERTAKINGS

TELECOMMUNICATION CONSULTANTS INDIA LIMITED

Telecommunication Consultants India Ltd. (TCIL) set up in 1978 under Ministry of Communications is a prime multi-disciplinary engineering organisation with full range of services - consultancy, design, engineering, installation, operation and maintenance, quality control, human resource development, managerial support and transfer of technology in all facets of telecommunication technology.

In less than a decade, TCIL activities have spread to 25 countries. It has to its credit a record of achievemnets. It successfully executed a number of major contracts of varying complexity on a turnkey basis in many countries of Africa and West Asia providing appropriate technology at competition cost. In recent years, its reach has gone over to even industrialised countries such as USA, the Netherlands, Switzerland, Australia and Ireland The turnover of the Company was expected to cross Rs 100 crore last year.

In India, TCIL has been executing numerous consultancy and turnkey contracts in hi-tech areas setting up dedicated networks for large users of telecom services to meet their specialised needs.

Its joint sector company 'Intelligent Communication Systems India Limited' (ICSIL) (under Delhi State Industrial Development Corporation), has also developed a multi-function work station.

TCIL has set up a joint sector company in association with Tamil Nadu Industrial Development Corporation, namely, 'Tamil Nadu Telecommunication Limited' (TTL) for manufacture of jelly-filled cables, which is expected to start production shortly.

TCIL's joint venture with Bellsouth International of USA, namely, 'TCIL Bellsouth Limited' for development of telecommunication–related software for use in India and abroad, has already commenced its operations.

MAHANAGAR TELEPHONE NIGAM LIMITED

Mahanagar Telephone Nigam Limited (MTNL) was formed as a public sector undertaking on 1 April 1986 to manage, control and operate telecommunication services of Bombay and Delhi telephone districts. The Nigam is providing wide range of services like telephone, telex, mobile telephones, radio paging, data communication and a large number of telematic services.

In the last three years, there has been allround development and growth in telecom network of these two metro cities including about 47 per cent increase in expansion, replacement of old equipment by modern electronic equipment, upgradation of network, use of high grade media, jelly-filled cables, PCM for junctions and large scale ducting, opening of telecom bureaux and other customer-oriented services like single window, subscriber interface, telephone '*adalats*' and open house sessions.

It is expected that during Eighth Five Year Plan MTNL shall further modernise telecom services and bring them at par with advanced countries. Large scale introduction of payphones on franchise basis, new services like voice mail, electronic mail, change number announcement and computerisation of telecom services' operations have been planned. To meet this objective, MTNL has made efforts for human resource development and skill upgradation at all levels. A number of expert agencies have also been engaged to expedite these activities Special thrust is being given to improvement in customers' service and interfacing.

In 1989-90, MTNL installed 82,000 telephone exchange lines in Delhi. Target for 1990-91 is fixed at 86,000 new lines.

VIDESH SANCHAR NIGAM LIMITED

Videsh Sanchar Nigam Limited (VSNL) formed on 1 April 1986 after conversion of Overseas Communications Service, is responsible for India's external telecommunication services like telephone, telex, telegraph, leased services, bureaufax, packet data, radiophoto, television, teleconference, multi-address broadcast, press newscast, etc , operated from four regional gateway centres at Bombay, New Delhi, Madras and Calcutta.

International Transmission facilities are via Geo-synchronous satellites operated by INTELSAT and positioned over the Indian Ocean at Vikram-Arvi-Bombay-Jawahar-Bombay and New Delhi-Bangalore and also through two wideband submarine telephone cable systems *viz*, IOCOM from Madras to Penang (Malaysia) and Gulf System from Bombay to Fujairah (UAE).

VSNL operates direct services with about 49 countries and provides ISD telephone service to 178 destinations and ISXD to 184 countries. It operates about 2,040 telephone trunks, 1,200 telex trunks, 46 public telegraph trunks, 47 leased voice/data circuits and 159 leased telegraph circuits.

Special services are also provided for Meteorological Department, Department of Civil Aviation, Ministry of External Affairs and press agencies

INDIAN TELEPHONE INDUSTRIES LIMITED

Indian Telephone Industries Limited (ITI), Bangalore is engaged in production of wide range of telecommunication equipment catering to needs of Department of Telecommunications, Railways, Defence and private customers. ITI has six production units at Bangalore, Naini, Palghat, Rae Bareli, Srinagar and Mankapur besides two research and development divisions, one each at Bangalore and Naini. The Mankapur unit was set up for manufacture of E-10B type electronic switching equipment. It has an installed capacity of five lakh lines per annum.

During 1988-89, ITI turnover was Rs 625.18 crore as against Rs 508.48 crore during 1987-88. It manufactured 9.48 lakh numbers of telephone instruments, 86,493 cross bar lines, 4,57,976 electronic lines and 1,54,238 strowger lines besides transmission equipment worth Rs 159.61 crore.

HINDUSTAN TELEPRINTERS

Hindustan Teleprinters Limited (HTL), Madras, a public sector undertaking, is engaged in manufacture of teleprinters, ancillary equipment and electronic typewriters and catering to needs of Department of Telecommunications, Defence and other users

During 1988-89, HTL achieved a gross turnover of Rs 2,950 09 lakh including accretion/decretion to stock and trade and work in progress, as compared to Rs 2,748.62 lakh during 1987-88, registering an increase of 37 per cent. Income from sales during the year amounted to Rs 2,755 lakh *vis-a-vis* Rs 1,926 lakh in the previous year.

HINDUSTAN CABLES

Hindustan Cables Limited (HCL) is a Government of India undertaking in the field of telecommunications. It has three production units, one at Rupnarainpur (West Bengal) set up in 1952 and the other two at Hyderabad (Andhra Pradesh). Rupnarainpur unit started production in 1954. First unit at Hyderabad was commissioned in 1974 and the second unit started commercial production from the end of 1985. It is producing all types of telecommunication cables, catering to telecommunication needs of Department of Telecommunications, Railways, Defence and other organisations besides exporting telecommunication cables to West Asia, Far East, the USSR and Iran.

HCL has machine tool unit at Narendrapur, Calcutta for production of sophisticated types of machine tools. It has a central research and development centre at Hyderabad with a pilot plant for production of optical fibre cables. Another unit has been set up at Naini in Allahabad for manufacture of 40,000 fibre km of optical fibre cables.

As part of its diversification programme, HCL is entering into the field of electronics. It has set up a turnkey division which is engaged in supply, installation and commissioning of cable network on turnkey basis. HCL also has a consistent good record of capacity utilisation, increase in turnover and profitability etc., since its inception. During 1988-89, it crossed the 500 crore rupee mark in its turnover with profit before taxation being over Rs 25 crore.

24 Labour

LABOUR policy in India derives its philosophy and content from Directive Principles of the Constitution and has been evolving in response to specific needs of the situation to suit requirements of planned economic development and social justice. It has been envisaged that growth of the economy would not only increase production, but also absorb the backlog of unemployment and under-employment and a substantial proportion of additional labour force. Seventh Plan laid emphasis on harnessing country's abundant human resources and improving their capabilities for development. Objectives of manpower planning are to ensure proper linkage of economic planning with manpower and educational planning so that no plan programme suffers from lack of trained manpower.

WORKING POPULATION

Working population of India in 1985 stood at 26.98 crore with annual increase of 2.55 per cent and was expected to be 30.61 crore by 1990. Organised sector of India's economy employs the largest number of workers in factories[1]. In 1986, estimated average daily employment in working factories stood at 77.95 lakh. Maharashtra had the largest number of factory workers[2] (12,10,569) followed by West Bengal (9,26,484), Tamil Nadu (8,31,802), Gujarat (6,74,640) and Andhra Pradesh (5,98,276). Average daily number of workers employed in all mines in 1985 was 7,88,661 (3,42,949 below ground, 1,92,788 in open-cast mines and 2,52,924 above ground). Corresponding figure for coal mines covered by the Mines Act, 1952 for 1985 was 5,51,000. Distribution of working population according to activity and sex is given in table 24.1.

WAGES, ALLOWANCES AND BONUS

The average per capita annual earnings of factory workers in different states and union territories are given in table 24.2.

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1. Under the Factories Act, 1948, a factory is defined as any premises including precincts thereof where 10 or more workers are working or were working on any day of the preceding twelve months and in any part of which power is used for manufacture. Where power is not used, number of workers should be 20 or more.
2. A worker is defined in the Act as a person, employed directly or through any agency including a contractor whether for wages or not, to any manufacturing process or in cleaning any part of machinery or premises used for a manufacturing process or in any other kind of work incidental to or connected with manufacturing process or the subject of manufacturing process.

TABLE 24.1 WORKING AND NON—WORKING POPULATION—1981 CENSUS

(Lakh)

Category	MALE		FEMALE		TOTAL	
	Number	Percentage share in total male population	Number	Percentage share in total female population	Number	Percentage share in total population
Working Population Total (A+B)	1,810	52 65	636	19 77	2,446	36 77
A. Total Main Workers	1,775	51 62	450	13 99	2,225	33 45
(i) Cultivators	7 76	22 56	149	4 65	925	13 91
(ii) Agricultural labourers	347	10 10	208	6 46	555	8 34
(iii) Household industry	56	1 64	21	0 64	77	1 16
(iv) Other workers	596	17 32	72	2 24	668	10 04
B. Marginal Workers	35	1 03	186	5 77	221	3 32
C. Total Non-Working Population	1,629	47 35	2,578	80 23	4,207	63 23
D Total Population (A+B+C)	3,439	100 00	3,214	100 00	6,653	100 00

EARNINGS

Variation in money earnings is shown in table 24.3

REGULATION OF WAGES

Payment of wages is governed by the Payment of Wages Act, 1936 and Minimum Wages Act, 1948, as amended from time to time. It extends to whole of India except Sikkim. The Payment of Wages Act, 1936 applies to persons employed in any factory including establishment declared as factories under the Factory Act, 1948 and in any railway and industrial establishment such as tramway or motor transport service, air transport service, docks, inland vessels, mines, quarries or oilfields, plantations, workshops in which articles are produced and establishments in which any work relating to construction, development or maintenance of buildings, roads, bridges or canals, etc., is being carried on. It applies only to those who are in receipt of wages, average of which falls below Rs 1,600 per month.

Employers can not withhold wages earned by workers, nor can they make any unauthorised deduction. Payment must be made before expiry of a specified day after the last day of wage period. Fines can be imposed for only those acts of omission which have been approved by appropriate authority and must not exceed an amount equal to three per cent of wages payable. If payment of wages is delayed or wrongful deductions are made, workers or their trade unions can file a claim. Payment of overtime in scheduled employment is governed by the Minimum Wages Act, 1948.

MINIMUM WAGES ACT

The Minimum Wages Act, 1948 empowers Government to fix minimum wages of employees working in specified employments. It provides for review and revision of minimum wages already fixed after suitable intervals not exceeding five years. However, Labour Ministers' Conference in July 1980 recommended that revision of minimum wages should be made within two years or on a rise of 50 points in consumer price index, whichever is earlier.

(Rs)

State/Union Territory	1976	1978	1980	1981	1982	1983	1984	1985
Andhra Pradesh	3,731	3,625	5,186	6,095	7,174	7,123	6,660	8,409
Assam	3,504	4,673	4,494	5,891	3,999	6,384	7,545	10,566
Bihar	5,262	5,527	5,584	5,760	5,277	7,861	7,231	6,880
Gujarat	4,793	5,645	8,544	7,320	7,505	9,502	9,482	3,760
Haryana	4,931	5,664	6,401	7,059	7,544	8,320	8,713	10,827
Himachal Pradesh	4,395	3,636	4,745	7,022	6,334	7,146	7,146	7,146
Jammu and Kashmir	2.087	3,400	4,069	5,082	5,157	5,437	5,429	5,429
Karnataka	3,042	NA	4,903	7,545	14,301	NA	NA	NA
Kerala	5,253	4,930	7,146	6,948	8,192	7,903	9,324	9,149
Madhya Pradesh	6,378	7,391	7,964	8,299	8,972	9,318	11,291	12,618
Maharashtra	5,680	7,210	7,190	8,762	7,280	8,376	10,673	12,730
Manipur	—	—	—	—	—	4,265	5,719	1,783
Nagaland	—	—	—	—	—	17,698	13,208	9,847
Orissa	5,417	6,119	6,728	7,497	8,445	10,466	10,281	12,283
Punjab	3,675	4,285	5,196	5,642	6,456	9,638	7,498	9,261
Rajasthan	4,954	5,811	6,698	7,493	7,830	8,683	8,816	11,117
Tamil Nadu	4,817	5,388	6,477	6,907	7,189	7,840	9,627	9,482
Tripura	2,251	3,630	7,937	2,454	2,454	2,440	4,476	4 476
Uttar Pradesh	4,486	5,418	6,376	6,775	6,640	NA	NA	NA
West Bengal	5,840	6,970	7,977	8,149	9,208	10,545	11,606	12,093
Andaman and Nicobar Islands	2,831	3,620	4,096	6,280	5,408	4,411	10,060	13,236
Delhi	5 092	5,528	6,228	5,999	7,197	7,838	10,180	9,335
Goa, Daman and Diu	5,965	5,715	5.211	11,886	7,276	7,869	11,224	11,065
Pondicherry	4,879	5,473	8,066	8,694	5,628	10,484	10,827	8,277
All India	5,125	6,068	6,997	7,416	7,532	8,440	9,611	8,882

NOTE: 1. Provisional. Data given in the table from 1976 to 1982 relates to workers earning less than Rs 1,000 per month and for the year 1983 it relates to workers earning less than Rs 1,600 per month

2. Information relating to factory workers excludes those for railway workshops and groups of industries, seasonal in character, consisting of food, beverages, tobacco and construction Data for the year 1983 also includes information in respect of factories under Section 85 of the Factories Act, 1948 and is thus not strictly comparable with that for the earlier years

NA means not available.

TABLE 24.3 INDEX OF EARNINGS OF WORKERS

Base 1976 = 100							
	1976	1977	1978	1979	1980	1981	1982
General Index of earnings	100	112	118	124	137	147	153

Central government is the appropriate agency in relation to any scheduled employment carried on by or under the authority of it or in railway administration or in relation to mine, oilfield or major port or any corporation established under the Central Act. State governments are the appropriate agency in relation to other scheduled employments. Central government is concerned to a limited extent with building and construction activities mostly carried on by Central Public Works Department, Ministry of Defence, etc., and agricultural farms under ministries of Defence and Agriculture. Bulk of employment falls in state spheres and state governments are required to fix/revise wages and ensure their implementation in respect of scheduled employments within their spheres Enforcement of the Minimum Wages Act in Central sphere is secured through the Central industrial relations machinery

WORKING JOURNALISTS ACT

The Working Journalists and other Newspaper Employees (Conditions of Service) and Miscellaneous Provisions Act, 1955 regulates conditions of service of working journalists and other persons employed in newspaper establishments. By a specific provision of this Act, provisions of the Industrial Disputes Act with certain modifications have been applied to working journalists. The Act was amended by an Ordinance on 26 July 1981 to provide for amplification of the definition of the term 'working journalist', so as to include part time correspondents and prevention of dismissal/discharge/retrenchment of newspaper employees (including part time correspondents) by newspaper establishments in order to avoid payment of wages as revised by Central government, The Ordinance was subsequently replaced by an Act of Parliament.

The Act provides for constitution of wage boards/tribunals to make recommendations about payment of wages to various classes of journalists and non-journalist employees in newspaper establishments. Wages are presently being paid as per the recommendations of Palekar Tribunal which gave its recommendations to Government on 13 August 1980. Government orders on recommendations with slight modifications were published on 20 July 1981.

Government had set up two wage boards–one for working journalists and the other for non-journalist employees on 17 July 1985 under the chairmanship of Justice U.N. Bachawat, a retired judge of Madhya Pradesh high court. The boards had submitted their interim reports recommending grant of interim relief at 7.5 per cent of basic wages subject to a minimum of Rs 45 from 1 May 1986. After considering recommendations of wage boards and the representations received thereon, Government announced grant of interim relief at 15 per cent of basic wages subject to a minimum wage of Rs 90. The decision was made effective from 1 June 1986.

The final report was submitted on 31 May 1989. After considering recommendations made by Bachawat Wage Boards, Government issued a notification accepting them with minor modification on 31 August 1989. The question of quantum of HRA and CCA to be paid to journalists as also non-journalist newspaper employees as per recommendations of Bachawat Wage Board Award, is under consideration of Government.

CONTRACT LABOUR

The Contract Labour (Regulation and Abolition) Act, 1970, which became applicable to whole of India in February 1971, provides for regulation of employment of contract labour in certain establishments and for its abolition in certain circumstances. It fixes responsibility on the principal employer for payment of wages in case of defaults. Government has set up three tripartite committees on prohibition of contract labour in certain works.

EQUAL REMUNERATION FOR MEN AND WOMEN WORKERS

The Equal Remuneration Act, 1976 provides for payment of equal remuneration to men and women workers for "the same work or a work of similar nature" and for prevention of discrimination against women in matters of employment.

Provisions of the Act have been extended to all employments. The Act provides for setting up of advisory committees for advising Government on increasing employment opportunities for women. Such committees have already been set up under Central government as well as in most states and union territories. An enforcement machinery has been set up at Central and state level under the Act.

The Equal Remuneration Act was amended with the passing of the Equal Remuneration (Amendment) Act, 1987 in December 1987 to prevent discrimination against women not only in recruitment but also in conditions of service subsequent to employment such as promotions, training, etc. Penalities have been enhanced as a result of the amendment. The Act also permits social welfare organisations recognised by Government to file complaints in court in respect of any offence under its provisions.

BONDED LABOUR

Bonded labour system was abolished all over the country from 1975 through the Bonded Labour System (Abolition) Act, 1976. The Act envisages release of all bonded labourers and simultaneous liquidation of their debts. New 20-Point programme stipulated full implementation of laws abolishing bonded labour system which implies: (1) identification, (2) release, (3) action against offenders, (4) constitution and holding of regul meetings of vigilance committees at district and sub-divisional levels, (conferring powers of judicial magistrates on executive magistrates und Section 21 of the Act and (6) maintenance of registers, etc., as prescrib under Rule 7 of the Bonded Labour System (Abolition) Rules, 1976

Under this Act, responsibility for identification, release and rehabilitati of bonded labourers lies entirely with state governments. Incidence bonded labour system has been reported from 12 states *viz.*, Andh Pradesh, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharas tra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and Haryana. As p latest reports received from state governments, total number of bond labourers identified and freed as on 31 March 1989 was 2,42,618 of whi 2,10,091 have been rehabilitated.

With a view to supplementing efforts of state governments, a Central sponsored scheme has been in operation since 1978-79 under which sta governments are provided Central financial assistance for rehabilitation bonded labourers. The scheme envisages provision of rehabilitation gra up to a ceiling limit of Rs 6,250 per bonded labourer, half of which is giv as Central share. A sum of Rs 2,969.38 lakh had been released under t scheme since 1978-79 till 31 March 1989. State governments have be requested to integrate this scheme with other anti-poverty programmes pool resources available under schemes for effective rehabilitation bonded labourers.

INVOLVEMENT OF VOLUNTARY AGENCIES

A new scheme called 'involvement of voluntary agencies in the identifi tion and rehabilitation of bonded labourers' was launched on 30 Octo 1987. Selection of such voluntary agencies will be done either by Coun for Advancement of People's Action and Rural Technology (CAPART) by concerned state governments Expenditure incurred under the sche will be shared equally by Centre and respective state governments.

BONUS

Right to share profit of a concern was conferred on workers under t Payment of Bonus Act, 1965. The Payment of Bonus (Second Amendme Act, 1980 provides for payment of a minimum bonus of 8.33 per cent Rs 100, whichever is higher, irrespective of whether there is alloca surplus or not. Bonus up to a maximum of 20 per cent of annual wage payable under this law in accordance with prescribed formula. Bonus m be paid under a different formula linked to production/productivity in l of allocable surplus by mutual agreement between employers and work subject to a limit of 20 per cent. The Act is not applicable to public sec enterprises except those operating in competition with similar undert ings in private sector. It is also not applicable to institutions not working profit like Reserve Bank of India, Life Insurance Corporation of India a departmentally managed undertakings. All banks are, however, covered.

Under Section 32 (iv)of the Payment of Bonus Act, 1965, employees employed by an establishment engaged in any industry carried on by or under the authority of any department of Central government or a local authority stand excluded from the purview of this Act.

By an amendment made to the Act in 1985, Government has raised the limit of wages for payment of bonus to employees from Rs 1,600 to Rs 2,500 per month. Employees drawing wages of more than Rs 1,600 and up to Rs 2,500 will however be paid bonus considering that the salary of such employees is Rs 1,600 only.

INDUSTRIAL RELATIONS

The Industrial Disputes Act, 1947 is the principal Central legislation which provides machinery for settlement of industrial disputes. In addition, the Code of Discipline (1958) and the Industrial Truce Resolution (1962) also help in promotion and maintenance of good industrial relations.

INDUSTRIAL EMPLOYMENT (STANDING ORDERS) ACT

The Industrial Employment (Standing Orders) Act, 1948 is applicable to industrial establishments wherein 100 or more workmen are employed. The appropriate authority can also extend provisions of the Act to establishments employing less than 100 workmen after giving two months' notice. In so far as Central sphere is concerned, the Act has been extended from 19 May 1982 to establishments employing 50 or more but less than 100 workers or so on any day of the preceding twelve months.

The Act lists out matters which have to be provided in standing orders of an industrial establishment. These broadly relate to conditions to recruitment, discharge, disciplinary action, holidays, etc., in relation to workers employed in industrial undertakings. Through a notification in 1983, additional items like service record, confirmation, age of retirement, transfer, medical aid in case of accidents, etc., were added to the Schedules and model standing orders were also notified.

Every industrial establishment to which the Act is applicable has to frame standing orders and get the same certified by appropriate authority. Central government is the appropriate agency in respect of industrial establishments under its control—railway administration, major port, mine or oilfield. The Act does not apply to an industrial establishment, if workmen therein are covered by FRs and SRs, CCS (CCA) rules, etc., or any other rules notified by appropriate authority. Central government has framed model standing orders applicable to industrial establishments in general and to coal mines.

The Act was amended in 1982 in which the term 'workman' and 'wages' were redefined so as to make the same as in the Industrial Disputes Act, 1947. Separate substantive provision was made for payment of subsistence allowance to workmen suspended, allowance is equal to 50 per cent of wages for first 90 days and thereafter 75 per cent where workman is no responsible for delay.

WORKS COMMITTEES

Works committees are required to be constituted in industrial establish ments employing one hundred or more workers. The committee comprise representatives of employers and workmen engaged in the establishmen It aims at promoting measures for securing and preserving amity and goo relations between employers and workmen. As on 31 December 1988 work committees were functioning in 561 establishments

WORKERS' PARTICIPATION IN MANAGEMENT

Government reviewed the working of earlier schemes on workers' part cipation which were introduced in October 1975 and January 197 respectively. In the light of the review and experience gained in th implementation of the scheme, Government introduced a new an comprehensive scheme of workers' participation *vide* Resolution dated 3 December 1983 in Central public sector undertakings State governmen are requested to introduce the scheme in their own public sect undertakings. Private sector would also be encouraged to implement th scheme.

A Tripartite Committee constituted under the scheme and comprisin representatives of some Central ministries/state governments, major publ sector undertakings and central trade union organisations, reviews prog ress of the scheme from time to time and suggests remedial measures. So fa eight meetings of this Committee have been held A monitoring cell ha also been created in Ministry of Labour to assist the Committee.

Out of 203 operational Central public sector enterprises, 109 hav implemented the 1983 scheme at shop floor/plant levels. Another 4 enterprises have implemented the scheme by appropriately modifying it s as to suit their own requirements

CODE OF DISCIPLINE

Code of discipline requiring employers and workers to utilise existin machinery for settlement of disputes and avoiding direct action, wa evolved at Indian Labour Conference in 1958. It has been accepted by a central organisations of employers and workers and several others.

Implementation organisations at the Centre and in the states, assist i settling disputes. The central organisations of employers and workers an public sector undertakings, except All India Trade Union Congress, hav set up committees or cells to screen cases for dissuading their affilia members from filing appeals in higher courts against judgments of low courts like industrial tribunals, labour courts, etc., in keeping with lett and spirit of the code. Similar procedure for screening cases of appea proposed to be filed by Central undertakings has been in operation since 1964.

GRIEVANCE PROCEDURE

Under Code of discipline, managements have to establish a procedure to ensure full investigation of disputes to help in their settlement. Central industrial relations machinery persuades managements to set up grievance procedure in undertakings falling in Central sphere.

LAYOFF AND RETRENCHMENT

Under the Industrial Disputes (Amendment) Act, 1976, reasonable restrictions have been put on employers' right to layoff, retrenchment and closure. Now, employer has to seek prior approval of a specified agency or appropriate authority stating clearly in the application reasons for laying off, retrenchment and closing of industrial establishments where 100 or more workers are employed.

CONCILIATION AND ADJUDICATION

Central industrial relations machinery known as Central Chief Labour Commissioner's Organisation, is responsible for prevention, investigation and settlement of industrial disputes under the Industrial Disputes Act, 1947. It also enforces some labour laws in Central sphere.

When industrial disputes can not be resolved by mutual negotiations, conciliation machinery steps in. It is compulsory for conciliation officer to hold conciliation proceedings when an industrial dispute exists or is apprehended in a public utility service and a notice under Section 22 of the Industrial Disputes Act, 1947 has been received, but it is optional in the case of other industrial establishments.

The bill to amend the Act, particularly with a view to reducing multiplicity of trade unions and inference of non-workmen in trade unions, was introduced in Parliament in May 1988.

The Industrial Disputes Act also provides for voluntary or compulsory adjudication of industrial disputes. Eleven Industrial Tribunals-cum-Labour Courts have been set up to adjudicate disputes in Central sphere. Of these two are at Dhanbad, two at Bombay and one each at Calcutta, Jabalpur, Delhi, Chandigarh, Kanpur, Asansol and Bangalore. Of these one at Bombay and the other at Calcutta are functioning as National Tribunals.

NATIONAL LABOUR INSTITUTE

National Labour Institute was set up by Government in 1972. It became operative on 1 July 1974 as an autonomous institute. It has a tripartite general council with Union Labour Minister as its president. Both general council and executive council comprise members from Government, employers and trade unions, besides eminent persons with noteworthy contributions in the field of labour and allied subjects. The Institute endeavours to promote better understanding and appreciation of labour problems in organised, unorganised and rural sectors of economy through research studies, education and training programmes, consultancy and publications. Based on action research and current information on labour problems, the Institute conducts education and training programmes for organisers of rural workers, trade union leaders, labour administrators and managers. In 1989, 14 training programmes were organised which were attended by 323 participants.

The Institute undertakes long and short term research studies in different priority areas so as to help in appropriate policy formulation in labour-related matters. It also provides consultancy services to public and private sector enterprises.

Besides occasional papers of research and monographs, the Institute publishes a monthly journal *Awards Digest* containing gists of labour courts, high courts and Supreme Court decisions relating to labour matters.

WORKERS EDUCATION

Central Board for Workers Education is a tripartite society established in 1958. It aims at: (i) strengthening among all sections of workers a sense of patriotism, national integrity, secularism and pride in being an Indian, (ii) equipping them for their intelligent participation in social and economic development; (iii) developing among them the Nation First Approach, and (iv) instilling in them greater understanding of the problems of their social and economic environment, their rights and obligations as citizens and as workers in industry and their responsibilities towards family members. The Board also aims at developing responsible and positive leadership from among workers themselves who can take up the responsibilities of running their unions.

The scheme of workers education operates at three levels: (a) national, (b) regional and (c) unit/village level. It covers workers from organised and unorganised sectors, rural workers and those belonging to weaker sections of society. An open level training institute known as Indian Institute of Workers Education at Bombay, organises national level training programmes for Board's officers and nominees of central trade union organisations and industrial federations.

There are 43 regional and 19 sub-regional centres conducting workers education at regional and unit/village levels. Selected workers are trained at these centres as worker-teachers in full time continuous training courses of three months duration in batches of about 25 each. These trainees sponsored by trade unions, are released by employers with full wages and treated as on duty.

The syllabus covers trade union formation and its development and functions. In addition, a good deal of coverage is given to duty aspect, national outlook and community interests. A fair knowledge of the history of our country, particularly freedom struggle, saga of sacrifices and service in the cause of freedom and understanding of economic perspective of the country are also included. These trained worker-teachers conduct three months part time course for workers at unit levels, besides a three-week full time course in those units which release workers for training.

The Board has also evolved several specialised short term programmes to meet growing needs of workers in public, private, cooperative and rural sectors. Joint courses for representatives of management and workers are also organised. Special courses are conducted on leadership development, productivity, education and participative management for workers and management personnel.

Tailor-made programmes are designed to meet educational needs of workers from weaker sections The Board launched several programmes for rural workers on selective basis under a pilot project in 1977-78. These have now become a regular feature. Cardinal objective of rural workers programme is to help them understand and solve their problems through self-help and develop their own organisation. The Board had launched a massive drive to disseminate amongst the rural workers information about various benefits available to them under different welfare, loan and subsidy schemes. For this simple, lucid and brief material in form of folders was prepared in different languages. It has also started training workers from small scale industries/unorganised sectors from September 1980 Functional adult literacy is being promoted among workers particularly those in mines and plantations.

Under the ILO-CBWE Project on Population Education, the Board brought out handbooks, manuals, pictorial booklets, folders, filmstrips, slides, etc., for use in family welfare education courses.

The Board publishes quarterly journal *Workers Education* in English with standard articles on trade unionism, industrial relations, labour laws and economics, tools, techniques and methods of workers education, etc. Regional centres bring out house journals in regional languages.

The Board also gives grants-in-aid to trade unions, educational institutions, etc., to help them develop their own workers education programmes.

The Ministry is also coordinating family welfare programme in the organised sector through a special cell, Population cell. It is being executed through UNFPA/ILO assisted projects on population education and family welfare.

CHILD LABOUR

The policy of Government is to ban employment of children under 14 in factories, mines and other hazardous employments in accordance with the provisions of the Constitution and to regulate working conditions of children in other employments. To achieve this basic objective the Child Labour (Prohibition and Regulation) Act, 1986 has been enacted and brought into force from December 1986. The Schedule of this Act contains at present as many as six occupations and 14 processes in which employment of children is banned. Government reviews the position from time to time with a view to adding more occupations/processes to the Schedule of prohibited employments.

A national policy on child labour was introduced to tackle this problem as legislation alone was not sufficient. This policy envisages among other things, taking up projects in areas of child labour concentration for provision of various welfare inputs such as vocational training, non-formal education, nutritious meals, health care, etc., to children withdrawn from employment. Nine such projects have so far been sanctioned.

Government also provides financial assistance to voluntary organisations for running programmes/projects for welfare of working children, providing them formal/non-formal education/supplementary nutrition, health care and vocational/skill training.

TRADE UNIONISM

Establishment in 1919 of ILO had its influence on the growth of unions in the country. While some unions chose to operate independently and confined their activities to an industrial centre/unit, others felt the need for coordination of their activities at national level. A section of Indian working class thought in terms of even wider international unity of workers through opportunity offered by ILO. Formation in 1920 of an all-India federation, *viz.*, All India Trade Union Congress, was the result of all these activities. Passing of the Trade Unions Act, 1926 gave a formal recognition to workers' right to organise.

TRADE UNIONS ACT

The Trade Unions Act, 1926 provides for registration of trade unions. Any seven or more members of a trade union may, by subscribing their names to the rules of trade union and otherwise complying with the provisions of the Act with respect to registration, apply for registration of the trade union under the Act. It gives protection to registered trade unions in certain cases against civil or criminal action.

MEMBERSHIP OF TRADE UNIONS

Verification of membership of central trade union organisations for purpose of giving representation on tripartite consultative bodies, development councils, boards, etc., at national and international levels including conferences and meetings convened by International Labour Organisation, is done by the office of Chief Labour Commissioner (Central). General membership verification as on 31 December 1968 of unions affiliated to four central trade union organisations, *viz.*, Indian National Trade Union Congress (INTUC), All India Trade Union Congress (AITUC), Hind

Mazdoor Sabha (HMS) and United Trade Union Congress (UTUC), was undertaken during 1969.

With the emergence of new trade union organisations claiming all-India character and membership strength, it was decided to undertake verification of membership as on 31 December 1977 and 31 December 1979 of unions affiliated to 10 central trade union organisations, *viz.*, (i) Indian National Trade Union Congress (INTUC), (ii) All India Trade Union Congress (AITUC), (iii) Hind Mazdoor Sabha (HMS), (iv) United Trade Union Congress (UTUC), (v) Centre of Indian Trade Unions (CITU), (vi) Bharatiya Mazdoor Sangh (BMS), (vii) United Trade Union Congress (UTUC) (LS), (viii) National Front of Indian Trade Unions (NFITU), (ix) Trade Union Coordination Centre (TUCC) and (x) National Labour Organisation (NLO).

However, verification could not be undertaken in the absence of consensus amongst central organisations of workers. Government evolved a procedure after going through their views. Accordingly, 10 central organisations were addressed for submission of their claims as on 31 December 1980 for general verification. All central trade union organisations except AITUC and CITU submitted their claims. Membership figures of unions affiliated to AITUC and CITU were collected from the records of Registrar of Trade Unions. General verification work initiated in November 1981 and final verification results as on 31 December 1980 given in table 24.4 were announced on 30 August 1984.

SOCIAL SECURITY

WORKMEN'S COMPENSATION ACT, 1923

A beginning was made in social security with the passing of the Workmen's Compensation Act in 1923. The Act provides for payment of compensation to workmen and their dependents in case of injury by accident (including certain occupational diseases) arising out of and in the course of employment and resulting in disablement or death. The Act applies to railway servants and persons employed in any such capacity as is specified in Schedule II of the Act. Schedule II includes persons employed in factories, mines, plantations, mechanically-propelled vehicles, construction works and certain other hazardous occupations. Minimum rate of compensation for permanent disablement and death have been fixed at Rs 24,000 and Rs 20,000 respectively.

Maximum amount for death and permanent total disablement can go up to Rs 90,000 and Rs 1,14,000 respectively depending on wages of workmen.

MATERNITY BENEFITS

The Maternity Benefit Act, 1961 regulates employment of women in

TABLE 24.4 MEMBERSHIP OF CENTRAL TRADE UNION ORGANISATIONS

Central Organisation	Claimed		Verified	
	No. of Unions	Membership	No. of Unions	Membership
1 INTUC	3,457	35,09,326	1,604[1]	22,36,128[1]
2. BMS	1,725	18,79,728	1,333[1]	12,11,345[1]
3. HMS	1,122	18,48,147	426	7,62,882
4. UTUC (LS)	154	12,38,891	134	6,21,359
5. NLO	249	4,05,189	172	2,46,540
6. UTUC	618	6,08,052	175	1,65,614
7. TUCC	182	2,72,229	65	1,23,048
8. NFITU	166	5,27,375	80	84,123
9. AITUC	1,366[2]	10,64,330[2]	1,080	3,44,746
10 CITU	1,737[2]	10,33,432[2]	1,474	3,31,031
Total	10,776	1,23,86,699	6,543	61,26,816

1. Figures do not include membership figures of 13 unions of BMS and one of INTUC in Post and Telegraph Department as an objection has been raised in this regard. A final decision will be taken after further examination of the issue
2. Figures shown as claimed membership of AITUC and CITU have been obtained from the records of respective Registrar of Trade Unions as these unions failed to submit them.

certain establishments for certain period before and after child birth and provides for maternity and other benefits. The Act applies to mines, factories, circus industry, plantations and shops and establishments employing ten or more persons, except employees covered under the Employees State Insurance Act, 1948. It can be extended to other establishments by state governments. There is no wage limit for coverage under the Act.

EMPLOYEES STATE INSURANCE SCHEME

The Employees State Insurance Act, 1948 marks the most important step in the provision of social security benefits. Till recently, it covered non-seasonal factories using power and employing 20 or more persons, but now it is being gradually extended by state governments to smaller factories, hotels, restaurants, shops, cinemas, etc., employing 20 or more persons. It covers employees drawing wages not exceeding Rs 1,600 per month.

The Act provides for medical care in kind and cash, benefits in the contingency of sickness, maternity, employment injury and pension for dependents on the death of worker because of employment injury. Full medical care including hospitalisation is also being progressively made available to members of family of the insured person.

During 1989-90, there were 108 ESI hospitals and 42 annexes with 19,955 beds and 1,288 dispensaries under the scheme. Number of employees covered was about 62 lakh.

INTER-STATE MIGRANT LABOUR

To safeguard interests of workmen who are recruited by contractors in one state for serving in an establishment situated in another state and to protect them from exploitation of contractors, the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 was enacted. This Act came into force on 2 October 1980. It seeks to ensure provisions of proper wage rate, displacement allowance, journey allowance and other facilities, protective clothing, medical facilities, etc. The Act is to be implemented by Central and state governments in their respective spheres of jurisdiction.

LEGISLATION FOR BUILDING AND CONSTRUCTION WORKERS

A bill namely, the Building and other Construction Workers (Regulation of Employment and Conditions of Service),1988 has been introduced in the Rajya Sabha. The bill *inter alia* provides for constitution of safety committees as also advisory boards (both Central and state) which will give advice to 'appropriate government' regarding safety, health and welfare measures for building and construction workers.

EMPLOYEES PROVIDENT FUND

Retirement benefits in the form of provident fund, family pension and deposit-linked insurance are available to employees under the Employees Provident Fund and Miscellaneous Provisions Act, 1952. As on 31 December 1988, the Act covered 173 industries/classes of establishments with about 1.42 crore subscribers. Coverage under the Act is presently restricted to establishments employing 20 or more persons. It is further restricted to those drawing wages up to Rs 2,500 per month. Minimum rate of contribution under the Act is 8.33 per cent. However, rate of contribution in respect of 98 industries/classes of establishments employing 50 or more persons has been enhanced to 10 per cent from 1 June 1989. Under the Act, employers are required to make a matching contribution.

DEATH RELIEF

Death Relief Fund was set up under the Employees Provident Fund Scheme in January 1964 for affording financial assistance to nominees or heirs of deceased members of unexempted establishments whose pay (including basic pay, DA, etc.) does not exceed Rs 1,500 per month at the time of death. Quantum of benefit is restricted to the amount by which amount payable on account of provident fund falls short of Rs 2,000.

EMPLOYEES DEPOSIT-LINKED INSURANCE SCHEME

Another important social security measure, Employees Deposit–Linked Insurance Scheme, 1976 was introduced for members of the Employees

Provident Fund and exempted Provident Funds with effect from 1 August 1976. On the death of member, the person entitled to receive provident fund accumulation would be paid an additional amount equal to average balance in provident fund account of the deceased during the preceding twelve months if such an average balance was not below Rs 500 during the said period.

Maximum amount of benefit payable under this scheme is Rs 25,000 and the employees do not have to make any contribution to it. This would be effective from March 1990.

FAMILY PENSION

To provide long term financial security to families of industrial employees in the event of their premature death, the Employees Family Pension Scheme was introduced from 1 March 1971 by diverting a portion of employers' and employees' contribution to the employees provident funds with an additional contribution by Government. Amount of family pension payable ranges from minimum of Rs 225 to maximum of Rs 750 per month depending on the period of membership of the fund with effect from 1 April 1988. In addition family pensioners are entitled to assurance benefit of Rs 5,000 to meet immediate expenses.

RETIREMENT-CUM-WITHDRAWAL BENEFIT

On retirement/superannuation, resignation, etc., a member is entitled to withdrawal benefit at the rates ranging between Rs 110 to Rs 400 (for one year's membership) and from Rs 9,000 to Rs 19,825 (for 40 years' membership), depending upon the pay range of the members and the length of his membership in the Family Pension Fund.

GRATUITY SCHEME

The Payment of Gratuity Act, 1972 is applicable to factories, mines, oil-fields, plantations, ports, railways, motor transport undertakings, companies, shops and other establishments. Coverage under the Act is restricted to employees drawing wages not exceeding Rs 2,500 per month The Act provides for payment of gratuity at the rate of 15 days' wages for each completed year of service, subject to maximum of Rs 50,000. In the case of seasonal establishment, gratuity is payable at the rate of seven days wages for each season. The Act does not affect the right of an employee to receive better terms of gratuity under any award or agreement or contract with employer.

WORKING CONDITIONS AND WELFARE

Working conditions in factories are regulated by the Factories Act, 1948 which prescribes a 48-hour week for adult workers and forbids employment of children under 14 in any factory. Minimum standards of lighting ventilation, safety, health and welfare services which employers must provide in their factories, have also been laid down. Factories employing over 30 women workers are required to provide a creche for their children. Shelters, rest rooms and lunch rooms are to be provided by factories employing over 150 workers. Factories with more than 250 employees have to provide canteens for their workers. Factories employing 500 employees or more workers have to appoint welfare officers. In 1987 the Act was again amended under the title, the Factories (Amendment) Act, 1987. Some amendments provide for: (i) constitution of site appraisal committees; (ii) compulsory disclosure of information by occupier; (iii) specific responsibility of occupier in relation to hazardous processes; (iv) power of Central government to appoint inquiry committees; (v) emergency standards; (vi) permissible limits of exposure of chemical and toxic substances; (vii) workers participation in safety management, and (viii) rights of workers to warn about imminent danger.

Amenities have also been provided in mines and plantations covered by the Mines Act, 1952, the Plantations Labour Act, 1951, the Beedi and Cigar Workers (Conditions of Employment) Act, 1966, the Contract Labour (Regulation and Abolition) Act, 1970, the Motor Transport Workers Act, 1961, etc.

To provide housing, medical, recreational and other welfare facilities on a planned basis, statutory welfare funds have been created for benefit of workers in coal, mica, iron ore, manganese ore, limestone, dolomite mines and in *beedi* industry. Welfare facilities provided under these funds include provision of housing, hospitals and medical, educational and recreational facilities.

Finances for funds are raised through the levy of a cess, an *ad valorem* cess as customs duty on mica exports, a cess as a duty on export of iron ore and manganese ore and duty of excise on internal consumption and a cess on limestone and dolomite consumed by iron ore and steel plants and cement and other factories. Welfare fund for beedi workers is being financed by levy of cess on manufactured beedis.

Welfare funds have been established under the following statutes; (i) The Mica Mines Labour Welfare Fund Act, 1946; (ii) The Limestone and Dolomite Mines Labour Welfare Fund Act, 1972; (iii) The Iron Ore Mines, Manganese Ore Mines and Chrome Ore Mines Labour Welfare Fund Act, 1976; (iv) The Beedi Workers Welfare Fund Act, 1976, and (v) The Cine-Workers Welfare Fund Act, 1981.

For formulation of policy and programmes under different funds, provision has been made for constitution of tripartite Central and state advisory committees. Central committees under different welfare funds, except Cine-Workers Welfare fund, have been constituted. Levy of cess is as follows: (i) mica-3$^1/_2$ per cent *ad valorem* on export; (ii) iron ore-50 paise per metric tonne on export/internal consumption; (iii) manganese ore-one rupee per metric tonne on export/internal consumption; (iv) chrome ore-three rupees per metric tonne on export/internal consumption; (v) beedi-30 paise per thousand manufactured beedis, and (vi) cine-Rs 1,000 per feature film submitted for certification to Central Board of Filn Certification.

PLANTATION LABOUR

The Plantation Labour Act, 1951 provides for welfare of plantation labou and regulates conditions of work in plantations. The Act is administered b state governments. It was passed in 1951, but was brought into force from April 1954. Even from this date only such Sections of the Act were give effect which could be enforced without framing of rules. Concerned stat governments published their rules under the Act from September 1955 t April 1959 on the lines of model rules recommended by Ministry c Labour.

With a view to removing some difficulties that have been experienced i the working of the Plantation Labour Act, 1951 and for enlarging the scop of the Act, the Plantation Labour (Amendment) Act, 1981 was passed b Parliament and has been brought into force with effect from 26 Januai 1982.

This Act applies to whole of India except Jammu and Kashmir an covers all tea, coffee, rubber, cinchona and cardamom plantatio measuring five hectare or more and employing 15 or more worker Workers drawing wages up to Rs 750 per month are covered under the Ac It also now provides for compulsory registration of plantations.

Under the amended Act, all plantation holders have to provide housi accommodation to their resident workers and their families and also those residing outside who have put in six months of continuous servi and who express a desire in writing to reside on plantations. Plantatio maintain hospitals and dispensaries for workers. Some plantations also r elementary schools for the education of workers' children. Training useful handicrafts such as tailoring, knitting and basket-making a recreational facilities are provided in some of the tea estate centres with t help of Tea Board.

WORKERS SAFETY

The Factories Act, 1948 is the principal legislation for regulating vari aspects relating to safety, health and welfare of workers employed factories. The Act is a Central enactment aiming at protecting work employed in factories from industrial and occupational hazards. St governments and union territory administrations frame rules under the and enforce provisions of the Act and rules through their factor inspectorates.

The Factories Act was amended in 1987 in order to impose a gene duty on occupiers to ensure health and safety of workers and on design manufacturers, importers and suppliers to ensure that articles design manufactured, etc., are without risk to health and safety of workers. T Act was also extended to include additional requirements aimed specifi at controlling occupational health hazards connected with hazardous and toxic chemicals as well as safety of both workers and general public in the vicinity. A new Chapter-IVA containing provisions relating to hazardous processes was inserted.

Model rules under the Factories (Amendment) Act, 1987 were framed by Ministry of Labour and circulated to states/UTs for incorporation in their factories rules.

An ILO-aided project on 'Establishment and Initial Operation of Major Accident Hazards Control System', is at present being executed by Ministry of Labour through DGFASLI. Under the project, 536 major accident hazard installations and 64 substances posing major accident hazards have been identified in various states/UTs and data relating to installations and substances has been collected, compiled and stored by Central Labour Institute, Bombay.

A set of draft regulations has been drawn up for control of major accident hazards with ILO assistance and sent to states and concerned Central ministries. These regulations will be promulgated under various statutes such as the Factories Act, the Mines Act and the Dock Workers (Safety, Health and Welfare) Act, 1986, etc., dealing with occupational safety and health at workplaces.

A USAID project on industrial safety and health development (ISHD) is being executed with a view to strengthening communication functions of DGFASLI in occupational safety and health, data base and capability for conducting safety audit.

A Central scheme for strengthening industrial health and safety was started in Seventh Plan with an outlay of Rs 106 lakh. The scheme envisages supply of equipment and technical literature for strengthening industrial hygiene laboratories in 18 states/UTs set up under UNDP project.

Provisions relating to safety, health and welfare of workers employed in docks are contained in the Dock Workers (Safety, Health and Welfare) Act, 1986. The Act came into force in April 1987.

NATIONAL SAFETY COUNCIL

National Safety Council was set up in 1966 to promote safety consciousness among workers to prevent accidents, minimise dangers and mitigate human sufferings, arrange programmes, lectures and conferences on safety conducts, educational compaigns to arouse consciousness among employers and workers and collect educational and information data, etc. As on 31 March 1988, the Council's membership of 2,133 consisted of 1,770 corporate members, 214 individual members, 43 trade union members and 106 life members. National Safety Day is celebrated on 4 March every year throughout the country to mark the foundation day of National Safety Council.

NATIONAL SAFETY AWARDS

To give recognition to good safety performance on the part of industrial undertakings and to stimulate and maintain the interest of both management and workers in accident prevention programmes, Government instituted in 1965 National Safety Awards. Award schemes were instituted for factories registered under the Factories Act, 1948, but from 1971, separate schemes for factories not covered under the Act and for ports have also been introduced. At present, ten schemes are in operation.

VISWAKARMA AWARDS

Viswakarma Awards earlier known as *Shram Vir Awards* were instituted in 1965 for workers of factories, mines, plantations and docks. These are given in recognition of meritorious performance which leads to high productivity or economy or efficiency.

PRIME MINISTER'S SHRAM AWARDS

In pursuance of the announcement made by Prime Minister at Dhanbad on May Day 1985, Government has introduced a scheme entitled 'Prime Ministers's Shram Awards'. These awards are given to workmen in recognition of their outstanding contribution towards production and for showing exemplary zeal and enthusiasm in discharge of their duties. The awards, in the order of precedence are: *Shram Ratna, Shram Bhushan, Shram Vir* and *Shram Shri/Shram Devi.* The recognition consists of a *Sanad* and a cash award of Rs one lakh, Rs 50,000, Rs 30,000 and Rs 20,000 respectively.

SAFETY IN MINES

Provisions for safety, health and welfare of workers employed in mines are contained in the Mines Act, 1952 and rules and regulations framed thereunder. These provisions are enforced by Ministry of Labour through Directorate General of Mines Safety. Main functions of the Directorate are: inspection of mines; investigation of all fatal accidents and certain serious accidents depending upon gravity of the situation; grant of statutory permission, exemptions and relaxations in respect of various mining operations; approval to mines safety equipment, appliances and material, and conduct of examinations for grant of statutory competency certificates, safety promotional incentives including organisation of national safety awards and national safety conferences.

NATIONAL SAFETY AWARDS (MINES)

National Safety Awards for mines were instituted in 1983. The scheme is designed to give recognition at national level for outstanding safety performance at mines which come within the purview of the Mines Act, 1952.

CONFERENCE ON SAFETY IN MINES

Conferences on safety in mines are held periodically after a gap of two years. First such conference was held in 1958 in Calcutta. Last conference (seventh) was held in New Delhi on 19-20 December 1988. The conference was attended by representatives of Central and state governments, employers and workers' organisations, members of Parliament and professional institutions. It reviewed various aspects concerning safety in mines and discussed at length measures to reduce accidents due to fall of roof and other reasons. It recommended additional measures that mines managements and workers have to take for safe working of mines. The need for strengthening inspection machinery also came up by way of recommendations.

EMPLOYMENT

Employment in organised sector, *i.e.*, in all public sector undertakings and non-agricultural establishments employing ten or more persons in private sector increased from 257.12 lakh in March 1988 to 259.83 lakh (provisional) in March 1988, an increase of 1.1 per cent. The increase in public sector employment during 1988-89 was 1.0 per cent, 1.2 per cent being in private sector. Seventh Plan document states that Sixth Plan generated 356 lakh 'Standard Person Years' (work for 8 hours a day for 273 days in a year) of employment opportunities. It has also been estimated that the backlog of unemployment at the outset of Seventh Plan was of the order of 92 lakh (for the age group 5-plus). Net addition to labour force in this age group was expected to be 393.8 lakh and additional employment generation to be of the order of 403.6 lakh 'Standard Person Years' during Seventh Plan.

The country has already a backlog of 270 lakh jobless and another 780 lakh would join them by 2000. Only the construction industry offers a high employment potential, about seven per cent against overall growth of less than two per cent.

NATIONAL EMPLOYMENT SERVICE

National Employment Service (NES) as on 31 December 1989 comprised 768 employment exchanges and 81 university employment information and guidance bureaux (UEIGBX). The exchanges assist all employment seekers, including special groups like handicapped, ex-servicemen, scheduled castes and scheduled tribes, women, etc., through placement against jobs notified by employers. NES also carries out other functions such as vocational guidance and employment counselling, collection and dissemination of employment market information and conducts studies in the field of employment and occupational research, with a view to generating data for framing employment and manpower policies. Programme of computerisation of exchanges is continuing to improve their working.

Under the Employment Exchanges (Compulsory Notification of Vacanices) Act, 1959, it is obligatory for all establishments in public sector and such of those non-agricultural establishments in private sector employing 25 or more workers, to notify their vacancies (with certain exemptions) to employment exchanges and supply periodic information as prescribed in the Act and in the rules made thereunder.

Table 24.5 gives figures relating to activities of employment exchanges.

TABLE 24.5 ACTIVITIES OF EMPLOYMENT EXCHANGES

Year	Exchanges (including UEIGBX)	Registrations (Thousand)	Aplicants placed in Employment (Thousand)	Applicants on the Live Register (End of the year) (Thousand)	Vacancies Notified (Thousand)
1956	143	1,670.0	189.9	758.5	296.6
1971	437	5,129 9	507.0	5,099.9	813.6
1976	517	5,619.4	496.8	9,784.3	815.6
1981	592	6,276.9	504.1	17,838.1	896.8
1982	619	5,862.9	473 4	19,753.0	819.9
1983	652	6,755.8	485.9	21,953 3	826.0
1984	666	6,219.0	407.3	23,546.8	707.8
1985	720	5,821 5	388.5	26,269.9	674.7
1986	741	5,535.4	351.4	30,131.2	623.4
1987	755	6,011.7	334.4	30,247.3	600.9
1988	840	5,963.2	328.5	30,050.2	543.3
1989	849	6,575.8	289.2	32,776.2	600.2

ADMINISTRATION

The day-to-day administrative control over employment exchanges was transferred to state governments in November 1956. From April 1969, states were also made financially responsible for manpower and employment schemes. The role of Central government is limited to policy making, coordination of procedures and standards, and development of various programmes on an all-India basis and training.

TRAINING AND RESEARCH

Central Institute for Research and Training in Employment Service (CIRTES) is functioning under Directorate General of Employment and Training (DGE and T) in Ministry of Labour since 1964 and performs these functions: (i) assessment of training needs of personnel of NES; (ii) planning and conducting training courses for employment service personnel from states; (iii) conducting research into problems concerning activities of the employment service, and (iv) compiling and publishing career literature and producing audio-visual aids for use in vocational guidance and career advising programmes.

The Institute also arranges tailor-made courses for trainee-officers deputed from different countries under various programmes.

VOCATIONAL GUIDANCE

Vocational guidance and employment counselling services are provided to youth (applicants without any work experience) and adults (with specific work experience). Such units functioned in 357 employment exchanges in 1988. In addition, employment information and guidance bureaux functioned in 81 universities. These units assist applicants and youth in planning their career. A special scheme operates in 28 selected districts on a pilot basis to motivate and guide job seekers to take up self-employment.

EXCHANGES FOR PHYSICALLY HANDICAPPED

There are 23 special exchanges for physically handicapped. They are functioning at Bombay, Delhi, Madras, Hyderabad, Calcutta, Ahmadabad, Bangalore, Ludhiana, Kanpur, Trivandrum, Jabalpur, Patna, Chandigarh, Jaipur, Bhubaneshwar, Shimla, Guwahati, Agartala, Rajkot, Surat, Vadodara, Imphal and Vishakhapatnam.

Seventeen vocational rehabilitation centres for handicapped are functioning at Ahmadabad, Agartala, Bangalore, Bombay, Calcutta, Delhi, Hyderabad, Jabalpur, Kanpur, Ludhiana, Madras, Trivandrum, Jaipur, Vadodara, Patna, Guwahati and Bhubaneshwar. These centres provide a comprehensive package of rehabilitation services to the handicapped. Centres at Patna and Vadodara have been set up exclusively to rehabilitate handicapped women.

SC/ST JOB SEEKERS

Nineteen coaching-cum-guidance centres for scheduled castes and scheduled tribes functioning at Delhi, Madras, Kanpur, Jaipur, Hyderabad, Trivandrum, Surat, Jabalpur, Ranchi, Calcutta, Aizawl, Bangalore, Hisar, Rourkela, Imphal, Nagpur, Mandi, Guwahati and Jowai provide confidence building training to job seekers.

TRAINING

In an endeavour to build up the career of young persons in their adolescence, DGE and T has evolved various training programmes. These are formulated within the national frame work as far as possible and also in collaboration with foreign countries.

CRAFTSMEN TRAINING

Industrial training institutes were set up all over the country to impart skills in 40 engineering and 26 non-engineering trades to youngmen and women in the age group of 15-25. By 1989, 2,070 such institutes with a total capacity of about 3,42 lakh, were providing training to craftsmen in the country. The duration of the courses varies from six months to two years for engineering trades, but is one year for all non-engineering trades. Educational qualification for admission in most of the trades is 8th standard or two classes below matriculation or its equivalent and for some trades it is matriculation or its equivalent or 10th class under the 10+2 system. Besides these 66 trades, state governments and union territories have introduced training in additional trades to meet requirements of new industries established in their areas.

With the objective to reorganise the craftsmen training programme on modular pattern as recommended by the Committee of Experts on Training, four model industrial training institutes, one each at Haldwani (UP), Calicut (Kerala), Choudwar (Orissa) and Jodhpur (Rajasthan), have been set up by DGE and T which offer broad-based basic training followed by modular training.

CRAFT INSTRUCTIORS TRAINING

Six Central training institutes were established at Bombay, Calcutta, Hyderabad, Kanpur, Ludhiana and Madras to train craft instructors required by industrial training institutes. Out of these six institutes, except the one located at Madras, other five had been upgraded as Advanced Training Institutes (ATI) during 1982. The six institutes with an admission capacity of 1,444 impart training in a number of trades. Facilities for training of instructors have been provided in chemical group of trades at ATI, Bombay, in printing group of trades at ATI, Kanpur and in farm mechanic trades at ATI, Ludhiana. A model training institute is attached to each of these institutes which provides practice teaching to trainee instructors.

ADVANCED VOCATIONAL TRAINING SCHEME

Advanced Vocational Training Scheme was launched in October 1977 for training of highly skilled workers and technicians in a variety of advanced and sophisticated skills not available from other vocational training programmes. The scheme was introduced in six advanced training institutes for instructors located at Bombay, Calcutta, Hyderabad, Kanpur, Ludhiana and Madras and 16 selected industrial training institutes under 15 state governments. These institutes were modernised to conduct various advanced courses under the scheme. About 10,000 workers/technicians are trained every year.

An advanced training institute for electronics and process instrumentation was established at Hyderabad in 1974 to train highly skilled technicians in fields such as domestic/ industrial/medical/ electronics and process instrumentation. Another institute for electronics and process instrumentation is working since 1981 at Dehra Dun.

FOREMEN TRAINING/SUPERVISORY TRAINING

An institute to train foremen was established in Bangalore in 1971. It trains existing and potential shop foremen and supervisors in technical and managerial skills and technicians from industry in advanced technical skills. To meet the increasing demand for trained foremen Government established the second Foremen Training Institute at Jamshedpur in 1982.

APPRENTICESHIP TRAINING SCHEME

The Apprentices Act, 1961 makes it obligatoryd for employers in specified industries to engage apprentices. Training consists of basic training followed by on-the-job or shop floor training in accordance with standards prescribed by Government in consultation with Central Apprenticeship Council. So far, 218 categories of industries and 130 trades have been brought under the Act. The Apprenticeship (Amendment) Act, 1973 provides for reservation of seats for scheduled caste and scheduled tribe candidates as well as for improving employment potential of engineering graduates and diploma holders.

The Apprentices Act had further been amended in 1986 to provide for a new category *viz.*, technician (vocational) apprentice for the benefit of 10+2 pass students from secondary education. These students will be undergoing one year on-the-job training in 20 different designated trades/subjects.

About 15,866 establishments are implementing the Act under which nearly 1.86 lakh trade apprentices were under training in various trades by the end of September 1989.

PART TIME TRAINING TO INDUSTRIAL WORKERS

The scheme for imparting part time training was introduced in 1958 with the objective to improve knowledge and skill of industrial workers who did not have benefit of systematic training in institutes. Under the scheme, industrial workers irrespective of their age but possessing two years workshop experience and sponsored by their respective employers, are eligible for admission. Courses of one/two years are conducted in the evenings in five ATIs at Calcutta, Bombay, Kanpur, Ludhiana, Hyderabad, and CTI, Madras under DGE and T, Ministry of Labour and in some industrial training institutes under control of state governments/ union territory administrations. After successful completion of courses, industrial workers are permitted to appear in all-India trade test conducted by National Council for Vocational Training for award of national trade certificate as issued under the craftsmen training scheme.

VOCATIONAL TRAINING AND RESEARCH

Central Staff Training and Research Institute was set up in Calcutta in 1968 for training, research and development of training aids. The Institute conducts training programmes for officers and staff of Central and state governments as well as from industry who control, regulate and direct training programmes. It also carries out research in vocational training aspects, prepares training aids and advises the industry and institutes on training and development problems.

VOCATIONAL TRAINING FOR WOMEN

Central Training Institute for Women in New Delhi is a national vocational training institute for women. The Institute provides instructor training and advanced training in selected trades particularly suitable for women. Government has also set up regional vocational training institutes for women at Bombay, Calcutta, Bangalore, Tura, Hisar and Trivandrum.

RURAL WORKERS

Various studies and Rural Labour Enquiries conducted from time to time, have revealed that benefits of various statutory and non-statutory schemes have not reached workers in rural areas, primarily due to lack of organisation among them. Realising the fact that social gains for economic development can be secured by rural workers only if they are properly educated and organised, a Plan scheme was formulated for 'Organisation of Rural Workers' by appointing honorary rural organisers (HROs) at block level to organise rural workers. The scheme is being implemented by state governments and each organiser is being paid an honorarium of Rs 200 per month and a fixed conveyance allowance of Rs 50 per month. Broad functions of HROs are to motivate rural workers to organise themselves and to give them knowledge about laws enacted for their welfare. Cent per cent reimbursement on expenditnre is borne by Centre.

To begin with, the scheme was introduced in 415 blocks. During 1983-84, the scheme was extended to 595 blocks (including 415 blocks in which the scheme was introduced earlier). During 1984-85,1,000 posts of HROs were allocated to 14 state governments (Union Territory of Pondicherry included) to cover 1,000 blocks. Five hundred more posts of HROs were allocated to states/union territories in 1985-86. Thus, total number of posts allocated now is 1,500 against which 870 HROs (provisional) have been appointed by states.

Government has constituted three tripartite study groups to study working and living conditions of workers in handloom and powerloom, leather and footwear and building and construction industries. The first two study groups have submitted their reports while the third one is about to finalise its report.

RURAL LABOUR ENQUIRIES

Government has so far conducted seven all-India rural labour enquiries. The first two enquiries known as Agricultural Labour Enquiries were conducted during 1950-51 and 1956-57. The other five enquiries, known as rural labour enquiries, were conducted in 1963-65, 1974-75, 1977-78, 1983 and 1987-88. The scope of the last five enquiries was extended to cover all labour households in rural areas. From the 32nd NSS Round (1977-78), rural labour enquiry has been integrated with general employment and unemployment survey of National Sample Survey Organisation. With the integration of field work and processing of data, all subsequent enquiries would be conducted quinquennially to provide continuous data in the form of time series.

There are over 644 lakh agricultural labourers. Of them, about 359 lakh are male and about 285 lakh female. They constitute 26.3 per cent of the total workforce in the country and 38.5 per cent of the country's agricultural workers. Both scheduled caste and scheduled tribe agricultural labourers together account for about 46 per cent of the total agricultural labourers.

Main objectives of rural labour enquiries have been to build up reliable and up-to-date estimates of important socio-economic characteristics of agricultural/rural labour households as also to study their trends and variations during the interregnum. Data collected under these enquiries pertains to demographic structure, extent of employment and unemployment, earnings, household income, household consumption, expenditure, indebtedness, etc., with additional data on literacy, trade unionism and awareness of the Minimum Wages Act (and wages fixed thereunder) among agricultural labourers during the latest enquiry. Data on consumption expenditure as thrown up by these enquiries is also utilised for preparation of weighting diagram for construction and revision of Consumer Price Index numbers for rural/agricultural workers. Rural labour enquiry reports (1977-78) on 'wages and earnings', 'consumption expenditure' and 'indebtedness' have since been released and that on 'employment and unemployment' is likely to be released shortly.

EMIGRATION

The Emigration Act, 1983 which came into effect on 30 December 1983, regulates emigration of citizens of India for employment in other countries. In 1989, number of Indian workers who had gone abroad for employment was about 1.2 lakh as compared to 1.7 lakh in 1988. Its aim is to properly govern the relationship between prospective employer and intending emigrant, as also between recruiting agents and intending emigrants either directly after obtaining permits from Indian missions or through recruiting agents registered with Ministry of Labour. Recruiting agents numbering 1,461 had been registered as on 31 December 1989 with Ministry of Labour after obtaining securities ranging from one lakh to five lakh rupees depending upon the number of persons proposed to be recruited. Persons who are acting as recruiting agents for deployment of doctors/ nurses and who are not required to seek emigration clearance, will also have to obtain a certificate of registration from the Ministry.

Agents are not allowed to take more than Rs 2,000 from each emigrant as service charges. To provide further protection, nine state manpower corporations are in operation. They are in Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and Union Territory of Delhi.

The Act provides for legal and penal action against unscrupulous recruiting agents. Various offences including cheating of emigrants have been made cognizable under the Act. Ministry of Labour has taken action against various agents for their defaults under various provisions of the Act.

A system of public hearing has been introduced in the office of the Protector General of Emigrants and seven offices of the Protectors of Emigrants located at Bombay, Madras, Cochin, Trivandrum, Calcutta, Chandigarh and Delhi. Senior officers, including Protector General of Emigrants, are available for redressal of grievances of public without prior appointment on two days of the week e.g., tuesday and friday and Protectors of Emigrants are available on tuesday and thursday.

Certain categories of persons are not required to obtain emigration clearance for seeking employment abroad. They are entitled to get the stamp of 'Emigration Check Not Required' (ECNR) on their passports from passport offices by showing proof of their eligibility. Such individuals are: (i) persons going abroad in managerial capacity in hotels, restaurants, tea houses or other places of public resort, etc., possessing specialised degrees in these fields. (ii) all gazetted government servants; (iii) all income tax payers (including agricultural income tax payers) in their individual capacity. Proof of income tax assessment and actual payment of income tax in last three years (not merely payment of advance tax); (iv) all professional degree holders such as doctors with MBBS or degree in ayurveda or homoeopathy; accredited journalists; engineers, chartered accountants, cost accountants; lecturers; teachers; scientists; advocates; etc., (v) spouses and dependent children of category of persons listed from (ii) to (iv); (vi) all persons staying abroad for more than three years (the period of three years could be either in one stretch or broken) and their spouses and children; (vii) seamen in possession of CDC and sea cadets; (viii) all diplomatic/official passport holders; (ix) dependent children of parents whose passports are classified as ECNR, below 24; (x) persons holding permanent immigration visas, such as in UK, USA and Australia; (xi) persons holding Graduate or higher degrees; (xii) persons holding diplomas from recognised institutions like polytechnics; (xiii) nurses possessing qualifications recognised under the Indian Nursing Council Act, 1947; (xiv) all persons above 60, and (xv) all visitors to Pakistan and Bangladesh.

25 Housing

HOUSING ranks next only to food and clothing as the basic needs of population. A certain minimum standard of housing is essential for healthy and civilised existence. Development of housing, therefore, enjoys high priority in a poor society like ours where such amenities are far below the minimum standards internationally accepted. Housing activity among other things aims at providing shelter, raising quality of life particularly of poorer sections and creating conditions conducive to the achievement of crucial objectives in terms of health, sanitation and education. It also provides substantial additional employment and dispersed economic activity, while improving urban-rural and inter-personal equity through narrowing difference in standards of living. According to 1981 census, total housing stock in the country was 1,167 lakh, which was expected to reach 1,381 lakh by 1988.

HOUSING POLICY

To meet these requirements and for more effective and efficient implementation of social housing schemes, National Housing Policy (NHP) was placed before both Houses of Parliament in May 1988. This policy fits in with the Global Shelter Strategy of the United Nations to which India is a signatory.

HOUSING FINANCE

In spite of housing being a priority sector activity, investment in this field as a percentage to total investment in the country, had declined from 34 per cent in the First to 10 per cent in the Seventh Plan. In order to accelerate the pace and facilitate house construction and building activities, following initiatives have been taken during last two years as part of NHP : (a) National Housing Bank was set up in 1988 which has initiated schemes such as (i) Home loan account scheme - a contractual deposit scheme linked to guaranteed loan, expected to mobilize Rs 1,000 crore per annum from household sector. So far two lakh accounts have been opened in various commercial banks and financial institutions; (ii) Refinance scheme for housing by commercial banks and financial institutions, and (iii) Land development and shelter programmes of public/private agencies to be operated through Housing and Urban Development Corporation (HUDCO) and commercial banks to increase supply of serviced land and houses. (b) Banking sector allocation for housing has been raised from Rs 225 crore to Rs 300 crore. It has been decided to earmark 1.5 per cent of incremental deposits with commercial banks for housing loans and 30 per cent will be channelled to individual/ household sector, besides increase in allocation of Life Insurance Corporation (LIC)/General Insurance Corporation (GIC) for direct and indirect finance for housing.

(c) Housing Promotion Finance Corporation, Canfin Homes and Punjab National Bank Housing Finance Private Limited have been set up while two more are being set up by Central Bank of India and Union Bank of India. LIC will also shortly be floating a subsidiary exclusively for housing.

(d) Operations of HUDCO had been expanded from Rs 481 crore in 1987-88 to Rs 760 crore in 1989-90 for both urban and rural housing and urban infrastructure provision. About 90 per cent dwelling units financed by HUDCO are for economically weaker sections and low income groups.

(e) Under Nehru Rozgar Yojana (NRY), Government provides a subsidy of Rs 1,000 per household for upgradation of housing of urban poor along with loan from HUDCO which will be implemented in collaboration with municipal bodies.

At present finance for housing flows from both formal and informal sources. In formal sector, flow of funds for housing during 1988-89 was Rs 2,550 crore which was likely to touch Rs 2,800 crore during 1989-90. Still, it is grossly inadequate to the estimated requirement of Rs 15,500 crore per annum for the next five years to meet housing needs.

BUILDING MATERIALS AND TECHNOLOGY INPUTS

Technology applications in housing are very crucial to mitigate the problem. Building materials account for 65 to 75 per cent of the total cost of construction. Demand of these materials has been continuously rising with the increasing need of housing construction both in rural and urban areas. Inadequate technology extension facilities and lack of coordinated promotion programmes at Central and state level to support production ventures, have been largely responsible for very limited application to these emerging technologies.

This problem is more severe in rural areas due to decreasing traditional materials like timber, bamboo, thatch etc. Commercial exploitation by various industries has further aggravated the situation. A change in the policy is, therefore, essential to give due priority to shelter construction through better availability of alternate materials at affordable prices and by minimising commercial exploitation of bio-mass.

Initiatives taken in this direction are: (a) as part of the Eighth Plan exercise, demand and likely shortage of some of the major building materials have been estimated along with potentiality of production of alternative building materials. This is being taken up with economic ministries; (b) some technologies and new materials and components already tested and manufactured would require scaling up for broad-based application. These have been identified for large scale extension on Technology Mission model; (c) a network of building centres has been set up as a Centrally-sponsored scheme through HUDCO to train artisans and others for transfer of appropriate technology. So far, 121 centres have come up. Steps are being taken to set up *Palika Karigaar Kendras* in urban areas. HUDCO has financed a number of industries for production of innovative building materials; (d) non-governmental organisations/ voluntary organisations are increasingly being supported to supplement governmental efforts, and (e) a cell headed by a consultant has been set up in Ministry of Urban Development for technology evaluation and application.

LAND REQUIREMENT

Land is a critical input in housing. There is acute shortage of serviced land, particularly in urban areas. This is responsible for inadequate housing activity. For everv ten lakh additional units, atleast 6,000 hectare of developed land is required. To tackle this problem, steps proposed are: (a) increased availability of serviced land, land acquisition, negotiated purchases, land readjustment or land sharing, larger allocations for land acquisition, necessary amendments to Central/state laws; (b) early amendments to the Urban Land (Ceiling and Regulations) Act to facilitate more land for different income groups in major cities, (c) modification of development plans, regulations and procedures for building permissions to permit cheaper legal shelter for the poor and more intensive use of land, and (d) earmarking of land in rural habitations for house sites to the landless.

Some of the major shelter schemes under implementation in Central/ state sector with financial support from HUDCO and other institutions, to mitigate housing problems of various disadvantaged groups both in rural and urban areas are: (i) house sites-cum-construction assistance to landless labourers/artisans; (ii) Indira Awas Yojana for SC/ST and freed bonded labourers; (iii) upgradation of houses in urban areas under the revised NRY; (iv) pavement dwellers scheme in metropolitan cities, (v) housing schemes for weavers and *beedi* workers, and (vi) schemes for working women.

URBAN DEVELOPMENT

Centrally-sponsored scheme for integrated development of small and medium towns launched in 1979-80 has covered 237 towns. Seventh Plan envisaged to cover 107 more towns at an outlay of Rs 88 crore. One hundred and eleven towns (including 11 towns identified by National Commission on Urbanisation) had been covered during Seventh Plan and Central assistance of Rs 64.08 crore released.

The scheme envisages Central loan assistance on a matching basis for components like land acquisition and development for residential schemes, traffic and transportation, markets and *mandis*, low cost sanitation, etc., in accordance with prescribed guideliness. Besides state governments are also required to take up components like slum improvement/upgradation, low cost sanitation, preventive medical facilities, health care, parks and playgrounds, etc., out of their own resources.

SOCIALISATION OF URBAN LAND

The Urban Land (Ceiling and Regulations) Act, 1976 came into force on 17 February 1976. It provides for: (i) imposition of a ceiling on both ownership and possession of vacant land in urban agglomerations (ceiling being on a graded basis according to classification of urban agglomeration); (ii) acquisition of excess vacant land by state governments with powers to dispose of it for common good; (iii) payment of an amount for acquisition of excess vacant land in cash and bonds; (iv) exemption in respect of certain specific categories of vacant land, and (v) restricting the plinth area for construction of future residential buildings. The Act provides for granting permission to hold land in excess of ceiling limits for utilising that for construction of dwelling units for weaker sections of society.

The Act applies to all states and union territories except Jammu and Kashmir, Kerala, Nagaland and Sikkim which have not adopted it so far. It also excludes Tamil Nadu which had enacted its own law in 1978.

ENVIRONMENTAL IMPROVEMENT OF URBAN SLUMS

Basic amenities like drinking water, widening and paving of existing lanes and pathways, provision of community baths and latrines, storm water drains, street lights, etc., in urban slums are provided in state sector schemes for environmental improvement of urban slums. Funds for these schemes are provided in state annual plans. State governments formulate and implement appropriate projects in accordance with their needs and priorities. During Sixth Plan, about 94 lakh slum dwellers were covered under them. Seventh Plan envisaged coverage of 90 lakh slum dwellers at an estimated cost of Rs 269.55 crore against which 88 lakh slum dwellers had been covered by October 1989.

CONSTRUCTION OF IMPROVED CREMATORIA BEDS

A new scheme for construction of improved crematoria beds was approved for implementation from 1988 to 1990. A sum of Rs 25 lakh was approved by Planning Commission for release as grant to various state governments/ union territories during 1989-90. The scheme aims at conserving precious/ scarce fuel wood at present consumed in cremation of dead bodies. A beginning was made by constructing about 625 beds in selected cities throughout the country at a cost of nearly Rs 4,000 per bed from this allocation of Rs 25 lakh.

LOCAL GOVERNMENT

MUNICIPAL CORPORATION

In most of states, municipal corporations have been established for major cities under specific Acts of municipal legislature. Administration of the city vests in an elected council and the powers of the corporation are exercised by three authorities, namely, (i) general council, (ii) standing committees and (iii) municipal commissioner. Standing committees are elected by the council and carry out most of the work of administration including taxation, finance and preparation of budget, engineering, health and education services. The general council appoints most of the officers of the corporation but the municipal commissioner is appointed by the government. Functions of municipal corporation include public safety, health, education, other conveniences as well as construction and maintenance of water works and sewage, roads, streets, bridges, parks, recreation grounds, markets, shopping centres, etc. Major corporations also undertake works of housing and land development. There are 73 municipal corporations in the country. The Calcutta Corporation Act has been recently amended to provide for the system of Mayor-in-Council.

MUNICIPAL COMMITTEE AND COUNCIL

For all other towns and cities, there are municipalities having elected boards or councils which in turn elect their own presidents. All members of a municipality constitute general body which decides all questions of policy and important details of municipal administration. Municipal council, however, functions through committees which exercise delegated powers or make recommendations to the council. Day-to-day work of the municipality is carried on by an executive officer drawn sometimes from states civil service or a statewise cadre of municipal officers. In many states, municipal councils continue to appoint their own executive officers and other officials.

PANCHAYAT

System of Panchayati Raj is generally a three-tier structure of local self-government at village, block and district levels. States are, however, free to make changes in the structure to suit local conditions.

TOWN AND COUNTRY PLANNING ORGANISATION

Town and Country Planning Organisation (TCPO) is a technical advisory body on all matters pertaining to urban and regional development. It provides guidance and assistance to all state governments and union territory administrations. TCPO also undertakes project work for development on consultancy basis from public undertakings and local bodies.

CENTRAL PUBLIC WORKS DEPARTMENT

Central Public Works Department (CPWD) is the official agency of Government for construction and maintenance of all Central government projects except those of Railways, Communications, Atomic Energy, Defence Services and All India Radio. The spectrum of activities of CPWD is very wide, right from selection of site, architectural, structural and landscape planning, designs, execution including budgetting and monitoring quality control of completion and post-completion maintenance. Contract management and arbitration are also done by CPWD.

CPWD handles a wide range of projects like housing and commercial complexes, educational institutions, hospitals, workshops, factories, hotels, foodgrains storage structures, airports, roads, bridges, etc. It also undertakes works of public undertakings and autonomous bodies as 'deposit works.' CPWD has developed considerable expertise in civil, electrical, mechanical and airconditioning engineering, architecture, horticulture and landscaping. It has a central designs organisation to undertake complex structural design work with the help of computers and provides consultancy services. The Department has also introduced computerisation in other areas like architectural designs, project scheduling and monitoring, schedules of rates, pay roll and personnel management, etc. It has field units to take up construction works even in remote parts of the country. The Department also undertakes works abroad for Indian-aided projects and Indian embassies.

NATIONAL CAPITAL REGION

National Capital Region Planning Board (NCRPB) has been set up with statutory powers under the National Capital Region Planning Board Act, 1985, to plan and promote a balanced and harmonised development of National Capital Region (NCR). This is a unique concept of regional development providing partnership approach with the Centre taking lead and three participating states Haryana, Rajasthan and Uttar Pradesh and Union Territory of Delhi and evolving an integrated development framework for the region. NCR development is expected to cost nearly Rs 3,000 crore.

NCR being one of the most urbanised regions of the country has been facing serious problems of unplanned and haphazard development particularly in Delhi and its adjoining areas which are growing at an alarming rate. Delhi itself is besieged by a host of serious problems due to shortages in water supply, power, public transport and sanitation. This is further aggravated by constant migration mainly because of its high employment generation capacity and better quality of living. Besides, Delhi metropolitan area towns are growing very rapidly because of their close proximity to the National Capital resulting in rapid growth around Delhi.

NCRPB has prepared a Statutory Regional Plan-2001 for NCR, which came in force from 23 January 1989. Two important goals are (i) a balanced and harmonised developed region leading to dispersal of economic activities and (ii) population. The Plan is an integrated policy framework relating to population distribution, settlement system, transport and telecommunications, physical and social infrastructure, regional land use, environment and eco-development, management structure of plan implementation and counter-magnet areas for development outside NCR.

NCRPB has identified priority towns/complexes in the region for induced rapid growth through creation of economic activities with a view to attracting potential Delhi-bound migrants. It will help reduce pressure on Delhi. In addition, the Plan envisages development of sub-regional centres, service centres and basic villages in various sub-regions of the National Capital Region.

WATER SUPPLY AND SANITATION

Water supply and sanitation is a State subject. Schemes thereof are formulated and implemented by state governments/union territory administrations. Seventh Plan envisaged a sum of Rs 2,988 crore for implementation of urban water supply, sewage and low cost sanitation schemes. Water supply and sanitation and sewage facilities are expected to reach 90 per cent and 50 per cent of urban population respectively by 1991.

Various training programmes have been initiated for human resource development in planning, design, operation, maintenance and management of urban water supply and sanitation schemes. Government has introduced use of micro-computer for planning and designing of water supply distribution and sewage systems besides imparting training to public health engineers. Financial assistance was provided to several agencies for purchase of micro-computers.

This Ministry has developed a management information system (MIS) which has been disseminated to state public health engineering departments and water supply and sewage boards for application. It gives technical advice and clearance of urban water supply and sanitation schemes for external assistance or loans from LIC. It has helped in completing six World Bank-aided development projects in Maharashtra, Uttar Pradesh, Punjab and Rajasthan. It has recently taken up the programme of 'liberation of scavengers' in collaboration with Ministry of Welfare in 300 towns on a whole town basis in the first phase, within a period of two to three years. It is also responsible for monitoring progress and ensuring proper utilisation of the Plan allocation of Rs 55 crore for improvement of sanitation, roads, drainage, street lights, slaughter houses and community facilities under Srinagar Core Area Development Project during 1989-91.

CONSTRUCTION AGENCIES

NATIONAL BUILDINGS CONSTRUCTION CORPORATION

National Buildings Construction Corporation (NBCC) was incorporated in 1960. It is one of the premier construction organisations which is actively engaged in execution of sophisticated construction/turnkey contracts both home and abroad. Its projects are put on network system. It has to its credit several important projects including major industrial structures, power stations, cement plants, fertiliser plants and refineries, tall RCC chimneys, bridges, flyovers, airports, luxury hotel complexes, water treatment plants and marine jobs, etc. It also provides consultancy services.

HINDUSTAN PREFAB LIMITED

Hindustan Prefab Limited (earlier known as Hindustan Housing Factory), New Delhi became a fully-owned Government company in 1955. It is engaged in production of pre-stressed concrete electric poles and railway sleepers. The Company also manufactures wooden joinery items and prefab/general construction works. Quality of wooden joinery items *viz.*, doors and window shutters manufactured by the company, is the best in the country. Prefabricated components for industrial structures have not only effected saving in steel and resulted in quicker construction but also reduced construction cost to some extent.

ACTION PLAN FOR FOOTPATH DWELLERS

Action Plan of Ministry of Urban Development envisages a comprehensive policy for footpath dwellers in major cities, who are absolutely shelterless and have been identified as a target group for providing shelter on priority basis.

Footpath dwellers rehabilitation scheme will cover cities with over 10 lakh population. Construction of night shelters and 'pay and use' latrines will be assisted by Centre, urban local bodies and HUDCO.

During Eighth Plan, five lakh people are to be covered under the scheme One lakh footpath dwellers will be provided night shelter facilities at a cos of Rs 50 crore in 1990-91. Centre will provide Rs 10 crore as subsidy and HUDCO Rs 40 crore as loan assistance. Per capita cost on night shelter and sanitation facilities will be Rs 5,000 (Central subsidy Rs 1,000 and HUDCO loan assistance Rs 4,000).

For proper identification of beneficiaries, local municipal bodies will b required to build a Register of houseless families living on pavements an beneficiaries under the scheme, and to monitor their rehabilitation over th next three years in night shelters or alternate sites.

26. Justice and Law

CONSTITUTION of the Republic of India guarantees, besides other rights, safeguards against arbitrary deprivation of life and personal liberty by providing in Article 21 that no person shall be deprived of his life or personal liberty except according to procedure established by law.

Adoption of a Republican Constitution by India in 1950 did not disturb continuity of existing laws and unified structure of courts. Unity and uniformity of the judicial structure were preserved by placing such areas of law as criminal law and procedure, civil procedure, will, succession, contract including special form of contract, but not including contract relating to agricultural land, registration of deeds and documents, evidence, etc., in Concurrent List.

SOURCES OF LAW

Main sources of law in India are the Constitution, statutes (legislation), customary law and case law. Statutes are enacted by Parliament, state legislatures and union territory legislatures. Besides there is a vast body of laws known as subordinate legislation in the form of rules, regulations as well as bye-laws made by Central/state governments and local authorities like municipal corporations, municipalities, *gram panchayats* and other local bodies. This subordinate legislation is made under the authority conferred or delegated either by Parliament or state or union territory legislatures concerned. Judicial decisions of superior courts like Supreme Court and high courts are important sources of law Decisions of Supreme Court are binding on all courts within the territory of India. As India is a land of diversities, local customs and conventions which are not against statute, morality, etc., are to a limited extent also recognised and taken into account by courts while administering justice in certain spheres.

ENACTMENT OF LAWS

Parliament is competent to make laws on matters enumerated in Union List. State legislatures are competent to make laws on matters enumerated in State List. Parliament alone has power to make laws on matters not included in State List or Concurrent List. On matters enumerated in Concurrent List, laws can be made by both Parliament as well as state legislatures. But in event of repugnancy, law made by Parliament shall prevail and law made by state legislature, to the extent of repugnancy, be void unless the latter law having been reserved for consideration of

President, has received his assent, and in that event it shall prevail in that state.

EXTENSION OF LAWS

Laws made by Parliament may extend throughout or to any part of the territory of India and those made by state legislature may generally apply only within the territory of the state concerned. Hence, variations are likely to exist from state to state in provisions of law relating to matters falling within State and Concurrent lists.

JUDICIARY

One of the unique features of Indian Constitution is that notwithstandin the adoption of a federal system and existence of Central Acts and Stat Acts in their respective spheres, it has generally provided for a singl integrated system of courts to administer both Union and state laws. At th apex of entire judicial system exists Supreme Court of India with a hig court of each state or group of states and under high courts, there is hierarchy of subordinate courts.

There is generally separation of judiciary from executive. Panchaya courts also function in some states under various names like *Nyay Panchayat, Panchayat Adalat, Gram Kachhari,* etc., to decide civil an criminal disputes of petty and local nature. Different state laws provide fo different kinds of jurisdiction of courts.

Each state is divided into judicial districts presided over by a district an sessions judge, who is the principal civil court of original jurisdiction an can try all offences including those punishable with death. He is the highe judicial authority in a district. Below him, there are courts of civ jurisdiction, known in different states as *munsifs,* sub-judges, civil judg and the like. Similarly, criminal judiciary comprises chief judicial magistra and judicial magistrates of first and second class.

SUPREME COURT

Supreme Court of India comprises Chief Justice and not more than other judges appointed by President. Judges hold office till 65. F appointment as a judge of Supreme Court, a person must be a citizen India and must have been for at least five years a judge of a high court or two or more such courts in succession; or an advocate of a high court or two or more such courts in succession for atleast 10 years or he must be the opinion of President, a distinguished jurist. Provision exists f appointment of a judge of a high court as an ad hoc judge of Supre Court and for retired judges of Supreme Court or high courts to sit and as judges of that court.

The Constitution seeks to ensure independence of Supreme Co judges in various ways. A judge of Supreme Court can not be remov from office except by an order of President passed after an address in each House of Parliament supported by a majority of the total membership of that House and by a majority of not less than two-third of members present and voting, and presented to President in the same session for such removal, on the ground of proved misbehaviour or incapacity. A person who has been a judge of Supreme Court is debarred from practising in any court of law or before any other authority in India.

The seat of Supreme Court of India is in New Delhi. Members of Court presently are: Chief Justice: Sabyasachi Mukharji.

Judges: Ranga Nath Misra, B.C. Ray, K.N. Singh, M.H. Kania, K. Jagannatha Shetty, L.M. Sharma, M.N. Venkatachaliah, S. Ranganathan, N.D. Ojha, S. Ratnavel Pandian, Dr. T.K. Thommen, A.M. Ahmadi, K.N. Saikia, Kuldip Singh, J.S. Verma, V. Ramaswami, P.B. Sawant, N.M. Kasliwal, M.M. Punchhi, K. Ramaswamy, Ms. M. Fathima Beewi, K.J. Reddy, S.C. Agrawal and R.M. Sahai.

JURISDICTION OF SUPREME COURT

Supreme Court has original, appellate and advisory jurisdiction. Its exclusive original jurisdiction extends to any dispute between Government of India and one or more states or between Government of India and any state or states on one side and one or more other states on the other or between two or more states, if and in so far as the dispute involves any question (whether of law or of fact) on which existence or extent of a legal right depends. In additon, Article 32 of the Constitution gives an extensive original jurisdiction to Supreme Court in regard to enforcement of Fundamental Rights. It is empowered to issue directions or orders or writs, including writs in the nature of *habeas corpus, mandamus, prohibition, quo warranto* and *certiorari* to enforce them.

Supreme Court has been conferred powers to direct transfer of any civil/criminal case from one state high court to another state high court or from a court subordinate to another state high court to a court of competent jurisdiction subordinate to another state high court. Supreme Court, if satisfied that cases involving the same or substantially the same questions of law are pending before it in one or more high courts or before two or more high courts and that such questions are substantial questions of general importance, may withdraw case or cases pending before high court or high courts and dispose of all such cases itself.

Appellate jurisdiction of Supreme Court can be invoked by certificate of high court concerned or by special leave granted by Supreme Court in respect of any judgment, decree or final order of high court in cases both civil and criminal, involving substantial questions of law as to interpretation of the Constitution. Appeals also lie to Supreme Court in civil matters, if high court concerned certifies: (a) that the case involves a substantial question of law of general importance and (b) that in the opinion of high court, the said question needs to be decided by Supreme Court. In criminal cases, an appeal lies to Supreme Court, if high court (a) has on appeal reversed an order of acquittal of an accused and sentenced him to death or to imprisonment for life or for a period of not less that 10 years or (b) has withdrawn for trial before itself any case from any court subordinate to its authority and has in such trial convicted the accused and sentenced him to death or to imprisonment for life or for a period of not less than 10 years or (c) certifies that the case is a fit one for appeal to Supreme Court. Parliament is authorised to confer on Supreme Court any further powers to entertain and hear appeals from any judgment, final order or sentence in a criminal proceeding of a high court.

Supreme Court has also a very wide appellate jurisdiction over all courts and tribunals in India in as much as it may, in its discretion, grant special leave to appeal from any judgment, decree, determination, sentence or order in any cause or matter passed or made by any court or tribunal in the territory of India.

Supreme Court has a special advisory jurisdiction in matters which may specifically be referred to it by President under Article 143 of the Constitution. There are provisions for reference to this Court under Article 317/(1) of the Constitution, 257 of the Income-Tax Act, 1961, Section 7 (2) of the Monopolies and Restrictive Trade Practices Act, 1969, 130A of the Customs Act, 1962, Section 35H of the Central Excise and Salt Act, 1944 and Section 82C of the Gold (Control) Act, 1968.

Appeals also lie to Supreme Court under the Representation of the People Act, Monopolies and Restrictive Trade Practices Act, Advocates Act, Contempt of Courts Act, Customs Act, Central Excise and Salt Act, Terrorist Affected Areas (Special Courts) Act, 1984 and Terrorist and Disruptive Activities (Prevention) Act, 1985.

Election petitions under Part III of the Presidential and Vice Presidential Elections Act, 1952 are also filed directly in Supreme Court.

HIGH COURTS

High Court stands at the head of state's judicial administration. There are 18 high courts in the country, two having jurisdiction over more than one state. Among union territories, Delhi alone has a high court of its own Other six union territories come under jurisdiction of different state high courts. Each high court comprises Chief Justice and such other judges a President may, from time to time, appoint. Chief Justice of a high court i appointed by President in consultation with Chief Justice of India and Governor of the state. Procedure for appointing puisne judges is the same except that Chief Justice of high court concerned is also consulted. The hold office until 62 and are removable in the same manner as a judge o Supreme Court. To be eligible for appointment as a judge, one must be a citizen of India and have held a judicial office in India for 10 years or mus have practised as an advocate of a high court or two or more such courts in succession for a similar period.

Each high court has power to issue to any person or authority and government within its jurisdiction, direction, orders or writs including writ which are in the nature of *habeas corpus, mandamus, prohibition, quo warranto* and *certiorari* for enforcement of Fundamental Rights and for any other purpose.

This power may also be exercised by any high court exercising jurisdiction in relation to territories within which cause of action, wholly or in part, arises for exercise of such power, not withstanding that the seat of such government or authority or residence of such person is not within those territories.

Total sanctioned strength of judges and additional judges in different high courts is 463, against which 376 were in position as on 1 May 1990.

TABLE 26.1 JURISDICTION AND SEAT OF HIGH COURTS

Name	Year of Establishment	Territorial Jurisdiction	Seat
Allahabad	1866	Uttar Pradesh	Allahabad (Bench at Lucknow)
Andhra Pradesh	1954	Andhra Pradesh	Hyderabad
Bombay	1862	Maharashtra, Dadra and Nagar Haveli and Goa, Daman and Diu	Bombay (Benches at Nagpur, Panaji and Aurangabad)
Calcutta	1862	West Bengal and Andaman and Nicobar Islands	Calcutta (Circuit bench at Port Blair)
Delhi	1966	Delhi	Delhi
Guwahati	1948[1]	Assam, Manipur, Mehgalaya, Nagaland, Tripura, Mizoram and Arunachal Pradesh	Guwahati (Bench at Kohima and Circuit benches at Imphal, Agartala and Shillong)
Gujarat	1960	Gajarat	Ahmadabad
Himachal Pradesh	1971	Himachal Pradesh	Shimla
Jammu and Kashmir	1928	Jammu and Kashmir	Srinagar and Jammu
Karnataka	1884[2]	Karnataka	Bangalore
Kerala	1958	Kerala and Lakshadweep	Ernakulam
Madhya Pradesh	1956	Madhya Pradesh	Jabalpur (Benches at Gwalior and Indore)
Madras	1862	Tamil Nadu and Pondicherry	Madras
Orissa	1948	Orissa	Cuttack
Patna	1916	Bihar	Patna (Bench at Ranchi)
Punjab and Haryana	1975[3]	Punjab, Haryana and Chandigarh	Chandigarh
Rajasthan	1949	Rajasthan	Jodhpur (Bench at Jaipur)
Sikkim	1975	Sikkim	Gangtok

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1. Originally known as Assam High Court, renamed as Guwahati High Court in 1971.
2. Originally known as Mysore High Court, renamed as Karnataka High Court in 1973.
3. Originally known as Punjab High Court, renamed as Punjab and Haryana High Court in 1966.

Each high court has powers of superintendence over all courts within its jurisdiction. It can call for returns from such courts, make and issue general rules and prescribe forms to regulate their practices and proceedings and determine the manner and form in which book entries and accounts shall be kept. Table 26.1 gives seat and territorial jurisdiction of high court.

ADMINISTRATIVE TRIBUNALS

In pursuance of the provisions of Article 323 A of the Constitution of India which provide for adjudication or trial by administrative tribunals, of disputes and complaints relating to recruitment and conditions of service of persons appointed to public services and posts in connection with affairs of Union government and state governments, the Administrative Tribunals Act, 1985 was passed by Parliament. Under this Act Central Administrative Tribunal (CAT) was set up on 1 November 1985 to provide speedy and inexpensive justice to Central government employees in respect of their service matters. At present there are 15 regular benches of CAT at principal seats of high courts. These benches also hold circuit sittings at other seats of high courts where workload for the tribunal is less. Two more regular benches at Jaipur and Lucknow and two additional benches in the principal bench of Central Administrative Tribunal at Delhi, are to be set up shortly. The territorial jurisdiction of each bench of CAT is shown in table 26.2.

TABLE 26.2 TERRITORIAL JURISDICTION OF BENCH OF CENTRAL ADMINISTRATIVE TRIBUNAL

Bench	Jurisdiction
1. Principal Bench (New Delhi)	Delhi
2. Ahmadabad	Gujarat
3. Allahabad	Uttar Pradesh
4. Bangalore	Karnataka
5. Calcutta	Sikkim, West Bengal and Andaman and Nicobar Islands
6. Chandigarh	Jammu and Kashmir, Haryana, Himachal Pradesh, Punjab and Chandigarh
7. Cuttack	Orissa
8. Ernakulam	Kerala and Lakshadweep
9. Guwahati	Assam, Manipur, Meghalaya, Nagaland, Tripura, Arunachal Pradesh and Mizoram
10. Hyderabad	Andhra Pradesh
11. Jabalpur	Madhya Pradesh
12. Jodhpur	Rajasthan
13. Madras	Tamil Nadu and Pondicherry
14. New Bombay	Maharashtra, Goa, Dadra and Nagar Haveli and Daman and Diu
15. Patna	Bihar

Section 4(2) of the Administrative Tribunals Act, 1985 provides fo setting up of state administrative tribunal by Central government on receip of specific request made by state government. Under this state administrative tribunals have been set up in Himachal Pradesh, Orissa, Karnataka, Madhya Pradesh, Tamil Nadu and Andhra Pradesh. Like CAT, state administrative tribunals enjoy jurisdiction, powers and authority of all courts except that of Supreme Court in regard to service matters of state government employees. It has also been decided to set up such tribunals in Arunachal Pradesh, Haryana and Maharashtra.

By January 1990 various benches of Central Administrative Tribunal received 24,670 cases form high courts and lower courts on transfer besides 58,794 cases instituted afresh in various benches of CAT. A total of 51,894 cases were disposed of by January 1990.

FAMILY COURTS

The Family Courts Act, 1984 aims at promoting conciliation in and securing speedy settlement of disputes relating to marriage and family affairs and related matters. It envisages that courts shall be set up in a city or town with population of more than 10 lakh or other places as state government may deem necessary. So far nine family courts have been set up–four in Uttar Pradesh, three in Rajasthan and one each in Karnataka and Tamil Nadu. Government has recently created 10 posts of judges for family courts in Delhi.

Following states/UTs have decided to set up such courts: Madhya Pradesh, Maharashtra, Sikkim, Orissa, Kerala, Pondicherry, Delhi and Andaman and Nicobar Islands. Necessary notifications have been issued in this regard. Government has also asked other states/UTs to set up these courts as early as possible.

SUBORDINATE COURTS

Subject to minor variations, structure and functions of subordinate courts are more or less uniform throughout the country. Designations of courts connote their functions. These courts deal with all disputes of civil or criminal nature as per the powers conferred on incumbent presiding over the court. These courts have been derived principally from important codes prescribing procedure, *i.e.*, the Code of Civil Procedure, 1908 and the Code of Criminal Procedure, 1973 and further strengthened by local statutes.

At the lowest level are courts described as munsif magistrate or civil judge (JD) or judicial magistrate first class (JMFC). In some states, munsif is also described as district munsif. Ordinarily such courts are set up at taluka/tehsil level with jurisdiction over one or more talukas/tehsils. Most of disputes, subject to a ceiling on pecuniary limit, are brought to these courts. In some states where workload does not justify existence of two separate cadres, munsif is also invested with power of JMFC. Members of this cadre, when posted in large urban areas, are assigned either exclusively civil or exclusively criminal work. When they are posted in metropolitan areas, they are described as metropolitan magistrates and chief judicial magistrates.

Next set of courts is described as courts of district and sessions judge which also include courts of additional judge, joint judge or assistant judge. Court of the district and sessions judge at district level is principal court of original jurisdiction. It is presided over by an officer called district and sessions judge. As a rule, same officer invested with power under both the statutes presides over the court and it is known as district and sessions court. Depending upon workload, a district court may have jurisdiction over more than one district. In some states, there is a court called court of civil and sessions judge. These courts generally have unlimited pecuniary jurisdiction and depending upon the power conferred on the incumbent officer incharge of the court, it can handle criminal cases where maximum punishment would not exceed seven years. In some states, these courts with unlimited pecuniary jurisdiction are called courts of civil judge (senior division) while in some states they are described as courts of subordinate judge.

In addition, there are courts known as small causes court. These are set up either under the Provincial Small Causes Act at district level or under the Presidency Town Small Cause Court Act in presidency/metropolitan towns

The Constitution lays down provision for appointment of district judge and recruitment of persons other than district judges to judicial service. It vests the power to control district courts and courts subordinate thereto in respective high courts.

ATTORNEY GENERAL

Attorney General of India is appointed by President and holds office during the pleasure of President. He must be a person qualified to be appointed as a judge of Supreme Court. It is the duty of Attorney General for India to give advice to Government of India upon such legal matters and to perform such other duties of legal character, as may be referred or assigned to him by President. In the performance of his duties, he has the right of audience in all courts in India as well as the right to take part in the proceedings of Parliament without the right to vote.

In discharge of his functions, Attorney General is assisted by a Solicitor General and four Additional Solicitors General.

ADVOCATE GENERAL

There is an Advocate General for each state, appointed by Governor and he holds office during the pleasure of Governor. He must be a person qualified to be appointed as judge of a high court. His duty is to give advice to state government upon such legal matters and to perform such other duties of legal character, as may be referred or assigned to him by Governor. Advocate General has the right to speak and take part in the prodeedings of state legislature without the right to vote.

LEGAL PROFESSION

In India, law relating to legal profession is governed by the Advocates Act, 1961 and the Rules framed thereunder by Bar Council of India. It is a self-contained code of law relating to legal practitioners and provides for constitution of state bar councils and Bar Council of India. Persons enrolled as advocates under the Advocates Act with state bar councils are entitled to practise profession of law throughout the country. An advocate on the roll of any state bar council may apply for transfer to the roll of any other state bar council in prescribed manner. No person shall be enrolled as an advocate on the roll of more than one state bar council. Dual system of attorney and advocate, which was in existence in High Courts of Bombay and Calcutta, had been abolished with effect from 15 October 1976. There are two classes of advocates–senior advocates and other advocates. An advocate may, with his consent, be designated as senior advocate, if Supreme Court or a high court is of the opinion that by virtue of his ability, standing at the Bar or special knowledge or experience in law, he deserves such distinction.

Senior advocates shall, in matter of their practice, be subject to such restrictions as Bar Council of India may, in interest of legal profession, presribe. Some restrictions on a senior advocate in matter of his practice are that he shall not appear without an advocate-on-record in Supreme Court or without an advocate in Part II of the State roll in any court/tribunal, etc. He shall not accept instruction to draft pleading or affidavit, advise on evidence or to do any drafting work of an analogous kind in any court or tribunal, etc., or undertake conveyancing work of any kind whatsoever. This, however, shall not extend to settling any such matter as aforesaid in consultation with an advocate in Part II of the said Rule. He shall not accept directly from a client any brief or instruction to appear in any court or tribunal, etc. He may in recognition of services rendered by an advocate in Part II of the State roll appearing in any matter, pay him the fee which he considers reasonable.

Certain standards of education, etc., have been prescribed for enrolment as advocates. There are certain rules regulating standards of professional conduct and etiquette, right of pre-audience, seniority, disqualification for enrolment, etc.

Every advocate shall bear in mind that any one genuinely in need of lawyer is entitled to legal aid even though he can not pay for it fully or adequately and within the limits of an advocate's economic condition, free legal assistance to indigent and oppressed is one of the higher obligations an advocate owes to society.

Bar councils have disciplinary jurisdiction over advocates on their rolls. This is subject to right of appeal to Bar Council of India and a further right of appeal to Supreme Court of India.

Matter relating to provision of social security measures to advocates has been considered by a high-powered committee under the chairmanship of Justice Bahrul Islam. Among other things, it has been recommended by that committee for provision of financial assistance to junior advocates for a period of five years from the date of their enrolment subject to certain eligibility conditions and providing a terminal benefit on retirement from profession/death/disability. It has also recommended for group insurance and certain other facilities for purchase of law books, furniture, etc., to members. Report of the committee is under consideration of Government.

LAW COMMISSION

Changing social, economic and ethical conditions in the society necessitate periodical revision of statute law. This function is assigned to Law Commission to ensure that laws are formulated and revised in the light of cherished ideals enshrined in the Constitution.

Twelfth Law Commission was reconstituted on 1 September 1988 for a period of three years under the chairmanship of Justice M.P. Thakkar with Justices Y.V. Anjaneyulu and P.M. Bakshi as members. G.V.G. Krishnamurthy is member-secretary of the Commission.

Terms of reference of this Commission are: (i) law and poverty: to examine laws which affect the poor, carry out post-audit of socio-economic legislation and take all such measures as may be necessary to harness law and legal process in service of the poor; (ii) to keep under review the system of judicial administration to ensure that it is responsive to reasonable demands of the times and particularly secure elimination of delays, speedy clearance of arrears and reduction in costs for quick and economical disposal of cases without affecting the cardinal principle that decisions should be just and fair; (iii) simplification of procedure to reduce and eliminate technicalities and devices for delay so that it operates not as an end in itself, but as a means of achieving justice and improvement of standards of all concerned with the administration of justice; (iv) to examine existing laws in the light of Directive Principles of State Policy and to suggest ways of improvement and reform and also to suggest such legislation as might be necessary to implement Directive Principles and to attain objectives set out in the Preamble to the Constitution, and (v) to revise the Central Acts of general importance so as to simplify them and remove anomalies, ambiguities and inequities, recommend to Government measures for bringing the Statute book up-to-date by repealing obsolete laws and enactments or parts thereof which have outlived their utility.

LEGAL AID

Fundamental entitlement of legal aid is a concomitant right that arises out of the consent of Article 14 of the Constitution which enjoins State not to deny to any person equality before law or equal protection of laws. Article 21 forbids State to deprive any person of his life or personal liberty except according to procedure established by law. Article 39 A further envisages that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities.

A high-powered committee was constituted under the chairmanship of Justice P.N. Bhagwati, judge of Supreme Court in September 1980. It has been reconstituted from time to time. At present, Chief Justice of India is its patron-in-chief and Justice R.N. Mishra, judge of Supreme Court its executive chairman. The model scheme formulated by the committee has been adopted by most of states/UTs. Under it, every citizen whose annual income from all sources does not exceed Rs 6,000 in cases before high courts and subordinate courts are eligible for free legal aid. In cases before Supreme Court the limit is Rs 9,000. Limitation as to income is not applicable in case of disputes where one of the parties belongs to scheduled castes, scheduled tribes, *vimukta jatis*, nomadic tribes or is a woman or a child.

Under this scheme legal aid and advice boards have been set up in most states. Boards have set up legal aid committees at high court and district levels and in most places at taluka level also. High court legal aid committees and Supreme Court legal aid committee have been set up for dispensing legal aid in cases pending in high courts and Supreme Court, respectively. As on 31 December 1989, 10.84 lakh persons had been benefitted under this scheme.

LOK ADALAT

Lok adalats which are voluntary agencies at present, are monitored and overseen by state legal aid and advice boards. They have proved to be a successful alternative forum for resolution of disputes through conciliatory methods.

As on 31 December 1989, 3,129 lok adalats were held. Over 18.29 lakh cases were settled. Compensation of about Rs 142 crore was paid in 59,978 motor accident claim cases. So far about a dozen lok adalats have been organised for cases pending before high courts such as Gujarat, Rajasthan, Andhra Pradesh and Karnataka. In addition, a lok adalat was organised on 19 November 1989 for cases pending in Supreme Court.

The Legal Services Authorities Act, 1987 (39 of 1987) has been enacted and is likely to be enforced soon. The Act provides statutory footing to legal aid movement and also setting up of legal service authorities at Central, state and district level. These authorities will have their own funds. Further, lok adalats which are at present informal agencies, will acquire statutory authority. Every award of it shall be deemed to be a decree of a civil court or order of any other court or tribunal and shall be final and binding on all parties to the dispute. It also provides that in respect of cases decided at a lok adalat, court fee paid by the parties will be refunded.

ENFORCEMENT AGENCIES

POLICE

Police force in the country is enjoined with responsibility of maintenance of public order and prevention and detection of crimes. Public order and police being State subjects under the Constitution, police is maintained and controlled by states.

Police force in state is headed by Director General of Police/Inspector General of Police. State is divided into convenient territorial divisions called ranges and each police range is under administrative control of a deputy inspector general of police. A number of districts constitute the range. District police is further subdivied into police divisions, circles and police stations. Besides civil police, states also maintain their own armed police and have separate intelligence branches, crime branches, etc. Police set-up in big cities like Delhi, Calcutta, Bombay, Madras, Bangalore, Hyderabad, Ahmadabad, Nagpur, etc., is directly under a Commissioner of Police who enjoys magisterial powers.

All senior police posts in various states are manned by Indian Police Service (IPS) cadres, recruitment to which is made on all-India basis. Recruitment, promotion and cadre control in respect of lower posts from police constables to deputy superintendent of police are done by state governments.

Government maintains a number of Central forces which are in the nature of other armed forces of the Union. Besides Central Bureau of Intelligence (IB) and Central Bureau of Investigation (CBI), a number of institutions for training of police officers and scientific or technical assistance in investigation and detection of crimes, are maintained by Government.

CENTRAL BUREAU OF INVESTIGATION

Central Bureau of Investigation (CBI) was created in April 1963. Prior to that, the organisation was known as Special Police Establishment functioning under the Delhi Special Police Establishment Act, 1946. CBI was entrusted with enlarged functions besides investigation. It was given the role of National Central Bureau for India under International Crimina Police Organisation (INTERPOL) and also Central Forensic Science Laboratory.

CBI through its special police establishment division, is the principa investigation agency of Government. It is concerned with investigation of cases of misconduct by public servants in the employment of Centra government and its corporate undertakings; cases in which interests o Central government or any corporation or body set up and financed by i are involved; cases relating to breach of Central laws in enforcement o which Central government is interested; big cases of fraud, cheating and embezzlement, and other cases when committed by organised gangs or professional criminals having inter-state or international ramification. CB derives its power to investigate these offences from the Delhi Special Police Establishment Act, 1946.

During 1988, CBI took up 1,224 cases for investigation involving 93 officers of gazetted status, 666 other public servants and 1,052 private persons. As a result of investigations, 446 cases involving 202 public servants of gazetted status, 275 other public servants and 678 private persons were prosecuted in courts of law. In the trials which concluded, 65 officers of gazetted status, 94 other public servants and 158 private persons were convicted.

CBI indexes criminals involved in international crimes and verifies fingerprints from various foreign national crime bureaux. INTERPOL notices are also circulated to various enforcement agencies in the country.

BORDER SECURITY FORCE

Border Security Force (BSF) raised in 1965, is charged with the task of maintaining permanent vigilance on India's international borders, especially along Pakistan and Bangladesh. Its statutory functions are: (i) to promote a sense of security among people living in border areas; (ii) to prevent trans-border crimes, unauthorised entry into or exit from the territory of India, and (iii) to prevent smuggling and any other illegal activity. Role of BSF has further increased in view of activity in border states and smuggling of arms by terrorists. In addition, the Force during war has a supplementary role with the Army and functions directly under its operational control.

Being an armed force, BSF units are called upon to undertake various internal security duties and also deployed to assist civil administration.

The Force headquarters, in Delhi, is headed by Director General. It maintains adequate liaison with other forces operating in border areas like customs, revenue intelligence and local police authorities. Maintenance of boundary pillars is an additional task which is undertaken in cooperation with Survey of India. The Force has four major training institutions, namely, (a) BSF Academy at Tekanpur (Gwalior) which undertakes training of officers, subordinate officers and other ranks, both initial and advanced training, (b) Training Centre and School at Hazaribag which undertakes training in specialist weapons and specialises in jungle training, (c) Central School of Weapons and Tactics at Indore and (d) Signal Training School at New Delhi. The Force has also set up a factory at Tekanpur for manufacturing tear smoke shell grenades to meet requirements of various police forces in the country. Its present annual production is 50,000 munitions. All tear smoke munitions required in the country are indigenously met by this unit. It is the only factory of its type in Asia and there are only four to five other factories in the world which manufacture this ammunition. For effective conduct of operations and administration, BSF has got ancillary units like water wing, air wing, dog training school, camel and equestrian wings.

In addition, BSF has set up a number of workshops for repair of small arms which cater to needs of police organisations of states/UTs, for repair/maintenance of their weapons like pistols, rifles, carbines, etc.

HOME GUARDS

Home Guards is a voluntary force raised in December 1946 to assist police in controlling civil disturbances and communal riots. Subsequently, the concept of a voluntary citizens' force was adopted by several states. In the wake of Chinese aggression in 1962, Centre advised states/UTs to merge their existing voluntary organisations into one uniform voluntary force known as Home Guards.

Role of home guards is to serve as an auxiliary to police in maintenance of law and order and internal security; help the community in any kind of emergency such as air raid, fire, cyclone, earthquake, epidemic, etc.; help in maintenance of special service, promote communal harmony and assist administration in protecting weaker sections; participate in socio-economic and welfare activities, and perform civil defence duties.

Home guards are of two types–rural and urban. In border states. Border Wing Home Guards battalions have also been raised. These battalions serve as an auxiliary to security forces. Total authorised strength of home guards in the country is 5.25 lakh, against which the raised strength is 4.52 lakh. The organisation is now spread over all states/UTs except Kerala and Arunachal Pradesh.

Home guards are raised under the Home Guards Act of states/UTs. They are recruited from various cross sections of people such as doctors, engineers, lawyers, teachers, professionals, government servants, employees of public and private sectors, college and university students, agricultural and industrial workers, etc., who give their spare time for betterment of community. All citizens of India within the age group of 18-50 are eligible to become home guards. Normal tenure is three to five years. Amenities and facilities given to home guards include free uniform and washing allowance, free board and lodging during training, cash awards and medals for gallantry and distinguished and meritorious service. A home guard whenever called up for duty/training is paid duty/training allowance at prescribed rates to meet out-of-pocket expenses.

Home guards with three years' service in the Organisation and trained in basic and refresher courses are given preference for recruitment to such Group C and D posts in Government as well as in most of state government services where training received as home guards is an added advantage in performance of duties.

Home guards are being increasingly used by police in maintenance of law and order, prevention of crime, anti-dacoity measures, border patrolling flood relief, prohibition, guarding vital plants, protection of forests, watch and ward duties, disaster relief, fire fighting, supervision of elections and social welfare activities. In the event of national emergency, civil defence work is entrusted to home guards.

Ministry of Home Affairs formulates policy in respect of role, target raising, training, equipping, financing, establishment and other importan matters. Expenditure incurred by state governments on home guards a per scale and norms prescribed by Centre is generally shared on 50:50

basis. Rs 21 crore were provided for reimbursement of expenditure to states on raising and training of home gaurds and their deployment for Lok Sabha/Vidhan Sabha general elections in 1989-90.

CENTRAL RESERVE POLICE FORCE

Central Reserve Police Force (CRPF) raised in 1939 was known as Crown Representative's Police. It has now 93 duty battalions including one *Mahila* battalion. These are deployed to reinforce state/UT police in maintenance of law and order and to help fight insurgency and arrange relief during natural calamities. CRPF personnel were deployed in Sri Lanka along with Indian Army for assisting Sri Lankan government in maintenance of law and order in areas affected by activities of Tamil militants. Besides, the Force was also deployed in large number in Punjab to fight terrorism.

CENTRAL INDUSTRIAL SECURITY FORCE

Central Industrial Security Force (CISF) was raised under an Act of Parliament in 1969 for better protection and security of industrial undertakings, owned by Government. It has been declared as an armed force of the Union under the CISF (Amendment) Act, 1983 from 15 June 1983. It is headed by Director General with headquarters in New Delhi. Strength of CISF was 71,530 as on 1 November 1989. The Force has been deployed mostly in vital sectors such as steel and fertiliser plants, oil refineries, ports, space installations, atomic energy establishments, etc.

ASSAM RIFLES

Assam Rifles is the oldest para-military force in the country. It has rendered outstanding service in north-eastern region during the last 154 years. Besides carrying out its tasks relating to: (a) security and vigilance of India's international borders in sensitive parts of north-eastern region; (b) conduct of counter-insurgency operations in insurgency-prone areas of Arunachal Pradesh, Nagaland, Manipur and Mizoram, and (c) assistance to civil administration in maintenance of law and order during situations beyond control of state police, Assam Rifles has also made a significant contribution in extending civil administration to the hitherto un-administered areas of this region. The Force was deployed in Sri Lanka in operation 'Pawan'.

Assam Rifles has also taken a lead in the field of adventure. In April-May 1986, it launched a unique rafting expedition over mighty Brahmaputra from Indo-Tibet border to Indo-Bangladesh border covering a record length of 1,655 km in 32 days on a bamboo raft. In 1987, Assam Rifles launched another high adventure mountaineering expedition and on 31 May that year it made history by scaling without oxygen Kanchenjunga, third highest mountain in the world. In 1988, it launcled a walking and jogging expedition from all passes of north-easten region to Kanniyakumari covering a distance of 4,500 km in 110 days. During February 1989

Assam Rifles launched a bicycle expedition touching capitals of all north-eastern states. In 1990, it launched yet another mountaineering expedition of high adventure scaling Mount Gorichen Peak (20,761 ft) successfully.

The Force has about 52,475 men and is headed by Director General with headquarters at Shillong. Bulk of the Force is operating under Army command.

CIVIL DEFENCE

Civil Defence aims at saving life, maintaining continuity of production and minimising damage to property in the event of hostile attacks. It also maintains the morale of people in disastrous situations.

As per Government's policy, civil defence measures are confined to selected and vital plants/installations depending upon their strategic and tactical improtance. Civil defence is organised primarily on voluntary basis except for a small permanent nucleus staff which is augmented during war/emergencies. Civil defence communication system aims at establishing an early warning system and implementing a network of communication channels in vulnerable zones.

Ministry of Home Affairs shares expenditure on the implementation of civil defence measures on authorised items by states on 50:50 basis except in north-eastern states and five northern districts of West Bengal where Central government bears all the expenditure.

Present strength of civil defence volunteers is 5.38 lakh of which 3.03 lakh volunteers have since been raised and 2.86 lakh of them trained up to June 1989.

National Civil Defence College, Nagpur conducts various civil defence courses for instructors, staff officers, NCC officers and also for officers from private and public sector undertakings.

FIRE SERVICES

Fire Services is part of Directorate General, Civil Defence (DGCD). National Fire Service College in Nagpur conducts both professional and degree courses in fire services. A three–year degree course in Fire Engineering has been started from December 1978. It is affiliated to Nagpur University. Foreign countries also send their candidates for training in this college. So far it has trained 9,557 candidates including 71 from abroad.

Fire Adviser and deputy fire adviser visit various states and render necessary advice to them for improving their fire services.

For development of fire services in states, General Insurance Corporation of India was persuaded to advance long term loans. So far Rs 120.16 crore have been sanctioned to states. Fire service week is observed every year from 14 April.

Standing Fire Advisory Council with Director General, Civil Defence as chairman, Fire Adviser as member-secretary and heads of Fire Services in states/UTs as members, is the highest national body where policy matters concerning all aspects of fire services are formulated.

NATIONAL POLICE ACADEMY

Sardar Vallabhbhai Patel National Police Academy established at Mount Abu in 1948 as Central Police Training College, was shifted to its present location in Hyderabad in 1975. As India's premier police training institution, the Academy conducts induction level and in-service training courses for Indian Police Service officers and police officers from abroad. It also conducts specific courses for All India Service and Central Service Group 'A' officers.

The Academy is headed by a Director of the rank of Director General of Police assisted by one additional director and three deputy directors. The faculty comprises 13 assistant directors including a forensic scientist, a judicial service officer and a computer and a wireless expert. In addition there is a professor in Business Management and three readers–one in Behavioural Science, one in Teaching Methodology and one in Training Methodology. Five instructors teach Police Science and Law, besides over twenty others imparting training in outdoor subjects.

A high level advisory board comprising top most police officers and eminent educationists as its members and headed by Union Home secretary, periodically reviews the syllabi and training methodology of various courses conducted at the Academy. Training courses restructured since 1986 include: (i) Basic Course for IPS probationers ($11^1/_2$ months with eight months practical training in states in between): (ii) Foundational Course (16 weeks) for probationers of All India Services and Central Services Group 'A'. This course was earlier conducted at Lal Bahadur Shastri National Academy of Administration, Mussoorie. It is now organised at NPA, Hyderabad, NADT, Nagpur besides Mussoorie; (iii) Level 1 Management Course (four weeks) for IPS officers of 6 to 10 years of service and SPS officers on select list of IPS: (iv) Level 2 Management Course (four weeks) for IPS Officers of 11 to 16 years of service; (v) Level 3 Management Course (two weeks) for IPS officers with 17 to 20 years of service; (vi) Training Seminar (one week) for IPS officers of over 20 years of service; (vii) Vertical Interaction Course (One week) for IPS officers (SP to DGP); (viii) Training Administrators Course (four weeks) for SPs; (ix) Training of Trainers Course (four weeks each in two phases) for DSPs, and (x) Vertically Integrated Training Programme (one week) for IAS officers (Sub-Collector to Cabinet Secretary on the specific theme of terrorism/violence). The Academy also conducts short term specialised courses such as one-week course on Women in Bureaucracy and two-week course for Probationers of Indian Customs and Central Excise Group 'A' Services.

Some other activities of the Academy include: Sardar Vallabhbhai Patel Memorial Lecture conducted annually, Prime Minister's Silver Cup Essay Competition and publishing of Academy magazine bi-annually, apart from promoting study and research on police-related topics.

INSTITUTE OF CRIMINOLOGY AND FORENSIC SCIENCE

Institute of Criminology and Forensic Science (ICFS) was established in 1972 to undertake research and training in criminology and forensic science. It organises in-service training programme for various functionaries of criminal justice system as also for officer-trainees from other Government departments and public sector undertakings. This Institute conducts various types of courses which are:

Criminology: (i) Crime and Justice; (ii) Advanced course in Criminology; (iii) Social Deviance and Marginal Crime; (iv) Management of Anti-social and Criminal Behaviour; (v) Advanced course in Juvenile Delinquency; (vi) Police Community Relations in context of crime control, and (vii) Orientation course in Research Methodology.

Forensic Science: (viii) Orientation course in Criminology and Forensic Science; (ix) Orientation to Forensic Science and Medicine; (x) Orientation to Document Examination; (xi) Advanced course in Criminalistics; (xii) Certificate course in Chromatography Techniques in Forensic Science; (xiii) Certificate course in Police Photography; (xiv) Certificate course in Forensic Biology including Serology; (xv) Certificate course in Forensic Chemistry including Toxicology; (xvi) Diploma course in Forensic Serology; (xvii) Diploma course in Forensic Ballistics; (xviii) Diploma course in Document Examination; (xix) Diploma course in Forensic Toxicology, and (xx) Orientation course in Investigation of Crime.

PRISONS

Prisons is a state subject under the Constitution of India. Administration and management of prisons including maintenance and upkeep of prisoners are regulated under the Prisons Act, 1894, the Prisoners Act, 1900 and the Transfer of Prisoners Act, 1950 as adopted by states. Administration of prisons is carried on in accordance with the rules framed under these Acts and incorporated in prison manuals of respective states/UTs.

There are different types of jails–central jails, district jails, sub-jails, open jails, institutions for young offenders and jails for women. Administrative set-up of jails in states is headed by Director General/Inspector General of Prisons.

All India Committee on Jail Reforms set up on 25 July 1980 headed by Justice A.N. Mulla, submitted its report in March 1983. It contains a large number of recommendations on various aspects of prison administration. Most of them are required to be implemented by state governments and union territory administrations, while some others by Central government. Implementing quite a large number of them involves substantial financial outlays. Based on recommendations, certain areas were identified as essential to be taken on a priority basis and financial requirement for implementing that was projected to the Eighth Finance Commission. The Commission recommended outlays for prison reforms and upgradation. Rs 137.56 crore was earmarked for allocation to 16 states during 1985-89.

Funds were made available for creating additional jail capacity for undertrials, young offenders, women prisonsers, lunatic prisoners and providing prison amenities, *i.e.*, water supply, sanitary latrines, electrification and prison staff accommodation.

Rs 33.53 crore was allocated to various states for improving jail administration for 1989-90 under the award of Ninth Finance Commission (First report).

Several other important aspects of prison administration like security and discipline, repairs and renovation of old jail buildings, strengthening administrative arrangements in prisons and training of prison staff, providing medical facilities to women prisoners and vocational training programmes to equip prisoners with skills for their rehabilitation in life, are also covered under a three-year (1986-87 to 89-90) scheme of assistance to states on 50:50 basis and also cent per cent grant in respect of some items with an outlay of Rs 50 crore.

Institute of Correctional Administration has been set up recently in Chandigarh as a registered society. This will initially cater to training needs of middle and senior level correctional officers of other departments in northern states and union territories.

PERSONAL LAW

In India, there are people of different religions and faiths. They are governed by different sets of personal laws in respect of matters relating to family affairs *i.e.*, marriage, divorce, succession, etc.

MARRIAGE

Law relating to marriage has been codified as different Acts applicable to people of different religions. These are:

(1) The Hindu Widows Remarriage Act, 1856;
(2) The Converts' Marriage Dissolution Act, 1866;
(3) The Indian Divorce Act, 1869;
(4) The Indian Christian Marriage Act, 1872;
(5) The Kazis Act, 1880;
(6) The Anand Marriage Act, 1909;
(7) The Child Marriage Restraint Act, 1929;
(8) The Parsi Marriage and Divorce Act, 1936;
(9) The Dissolution of Muslim Marriages Act, 1939;
(10) The Special Marriage Act, 1954;
(11) The Hindu Marriage Act, 1955;
(12) The Foreign Marriage Act, 1969, and
(13) The Muslim Women (Protection of Rights on Divorce) Act, 1986.

The Special Marriage Act, 1954 extends to whole of India, except Jammu and Kashmir and also applies to citizens of India domiciled in territories to which the Act extends but who are in Jammu and Kashmir. Persons governed by this Act can specifically register marriage under the said Act even though they are of different religious faiths. The Act also provides that the marriage celebrated under any other form can also be registered under the Special Marriage Act, if it satisfies requirements of the Act.

The Hindu Marriage Act, 1955, which extends to whole of India, except Jammu and Kashmir, applies also to Hindus domiciled in territories to which the Act extends and who are outside the said territories. It applies to Hindus of all denominations, including Buddhists, Sikhs, Jains and all those who do not profess to be Muslims, Christians, Parsis or Jews. However, the Act does not apply to members of any scheduled tribes unless Government otherwise directs. An attempt has been made to codify customary law which is prevalent among Hindus by enacting the Hindu Marriage Act, 1955.

Provisions in regard to divorce are contained in Section 13 of the Hindu Marriage Act and Section 27 of the Special Marriage Act. Common ground on which divorce can be sought by a husband or a wife under these Acts fall under broad heads: adultery, desertion, cruelty, unsoundness of mind, venereal disease, leprosy, mutual consent and being not heard of as alive for seven years.

As regards Christian community, provisions relating to marriage and divorce are contained in the Indian Christian Marriage Act, 1872 and the Indian Divorce Act, 1869. Provisions in regard to divorce applicable to Christian community are contained in Section 10 of the Indian Divorce Act. Under that Section, a husband can seek a divorce on the ground that the wife has been guilty of adultery, but the wife can seek a divorce on the ground that the husband has become convert to another religion and has gone through a marriage with another woman or has been guilty of (a) incestuous adultery, (b) bigamy with adultery, (c) marriage with another woman with adultery, (d) rape, sodomy or bestiality, (e) adultery coupled with such cruelty as without adultery would have entitled her to a divorce, a *mensa etoro* (a system of divorce created by Roman Church equivalent to judicial separation on grounds of adultery, perverse practices, cruelty, heresy and apostasy) and (f) adultery coupled with desertion without reasonable excuse for two years or more.

As regards Muslims, marriages are governed by Mohammadan law prevalent in the country. As regards divorce, *i.e., talaq*, a Muslim wife has much restricted right to dissolve her marriage. Unwritten and traditional law tried to ameliorate her position by permitting her to seek dissolution under following forms: (a) *Talaq-i-Tafwid:* This is a form of delegated divorce. According to this, husband delegates his right of divorce in a marriage contract which may stipulate that, *inter alia*, on his taking another wife, the first wife has a right to divorce him, (b) *Khula:* This is a dissolution of agreement between the parties to marriage on wife's giving some consideration to husband for her release from marriage tie. Terms are a matter of bargain and usually take form of the wife giving up her *mehr* or portion thereof and (c) *Mubarat:* This is a divorce by mutual consent.

Further, by the Dissolution of Muslim Marriages Act, 1939, a Muslim wife has been given right to dissolve marriage on these grounds: (1) whereabouts of the husband have not been known for a period of four years, (2) husband is not maintaining her for a period of two years, (3) imprisonment of husband for a period of seven years or more, (4) failure on the part of husband to perform his marital obligations, without a reasonable cause, for a period of three years, (5) impotency of husband, (6) insanity for a period of two years, (7) suffering from leprosy or virulent venereal disease, (8) marriage took place before she attained the age of 15 and such marriage not consummated and (9) cruelty.

The Parsi Marriage and Divorce Act, 1936 governs matrimonial relations of Parsis. Word Parsi is defined in the Act as Pars Zoroastrian. A Zoroastrian is a person who professes Zoroastrian religion. It has a racial significance. Every marriage as well as divorce under this Act is required to be registered in accordance with procedure prescribed in the Act. However, failure to fulfil requirements on that behalf does not make marriage invalid. The Act provides for monogamy. By the Parsi Marriage and Divorce (Amendment) Act, 1988 (5 of 1988), scope of some provisions of the Parsi Marriage and Divorce Act, 1936 have been enlarged so as to bring them in line with the Hindu Marriage Act, 1955.

As regards matrimonial laws of Jews, there is no codified law in India. Even today, they are governed by their religious laws. Jews regard marriage not as a civil contract, but as relation between two persons involving very sacred duties. Marriage can be dissolved through courts on grounds of adultery or cruelty. Marriages are monogamous.

As regards personal laws relating to minority communities, it has been the policy of Government to encourage reforms therein only on the initiative of those communities.

CHILD MARRIAGE

The Child Marriage Restraint Act, 1929, as amended in 1978, now provides that marriage age for male will be 21 and that for female 18. This amendment has been brought into force from 1 October 1978.

ADOPTION

Although there is no general law of adoption, yet it is permitted by a statute amongst Hindus and by custom amongst a few numerically insignificant categories of persons. Since adoption is legal affiliation of a child, it forms the subject matter of personal law. Muslims, Christians and Parsis have no adoption laws and have to approach court under the Guardians and Wards Act, 1890. Muslims, Christians and Parsis can take a child under the said Act only under foster care. Once a child under foster care becomes major, he is free to break away all his connections. Besides, such a child does not have legal right of inheritance.

Foreigners who want to adopt Indian children have to approach court under the aforesaid Act. In case court has given permission for the child to be taken out of the country, adoption according to a foreign law (*i.e.*, law applicable to guardian) takes place outside the country.

Hindu law relating to adoption has been amended and codified into the Hindu Adoptions and Maintenance Act, 1956, under which a male or female Hindu having legal capacity, can take a son or daughter in adoption.

In dealing with the question of guardianship of a minor child, as in other spheres of family law, there is no uniform law. Three distinct legal systems are prevalent–Hindu law, Muslim law and the Guardians and Wards Act, 1890.

A guardian may be a natural guardian, testamentary guardian or a guardian appointed by court. In deciding the question of guardianship, two distinct things have to be taken into account–person of the minor and his property. Often the same person is not entrusted with both.

The Hindu Minority and Guardianship Act, 1956 has codified laws of Hindus relating to minority and guardianship. As in case of uncodified law, it has upheld the superior right of father. It lays down that a child is a minor till the age of 18. Natural guardian for both boys and unmarried girls is first the father and after him mother. Prior right of mother is recognised only to the custody of children below five. In case of illegitimate children, mother has a better claim than the putative father. The Act makes no distinction between the person of the minor and his property and, therefore, guardianship implies control over both. The Act directs that in deciding the question of guardianship, courts must take the welfare of child as the paramount consideration.

Under Muslim law father enjoys a dominant position. It also makes a distinction between guardianship and custody. For guardianship, which has usually reference to guardianship or property, according to *Sunnis*, father is preferred and in his absence his executor. If no executor has been appointed by father, guardianship passes on to paternal grandfather. Among *Shias*, difference is that father is regarded as the sole guardian but after his death, it is the right of grandfather to take over responsibility and not that of executor. Both schools, however, agree that father while alive is the sole guardian. Mother is not recognised as a natural guardian even after the death of father.

As regards rights of natural guardian, there is no doubt that father's right extends both to propety and person. Even when mother has the custody of minor child, father's general right of supervision and control remains. Father can, however, appoint mother as a testamentary guardian. Thus, though mother may not be recognised as a natural guardian, there is no objection to her being appointed under father's will.

Muslim law recognises that mother's right to custody of minor children *(Hizanat)* is an absolute right. Even the father can not deprive her of it. Misconduct is the only condition which can deprive the mother of this right. As regards the age at which the right of mother to custody terminates, Shia school holds that mother's right to Hizanat is only during the period of weaning which is over when the child has completed the age of two, whereas *Hanafi* school extends the period till the minor son has reached the age of seven. In case of girls, Shia law upholds mother's right till the girl reaches the age of seven and Hanafi school till she attains puberty.

The Guardian and Wards Act, 1890 applies to all communities. It clearly lays down that father's right is primary and no other person can be appointed unless the father is found unfit. This Act also provides that court must take into consideration the welfare of child while appointing guardian under the Act.

MAINTENANCE

Obligation of the husband to maintain the wife arises out of the status of the marriage. Right to maintenance forms a part of the personal law.

Under the Code of Criminal Procedure, 1973, right of maintenance extends not only to wife and dependent children, but also to indigent parents and divorced wives. Claim of the wife, etc., however, depends on the husband having sufficient means. Claim of maintenance for all dependent persons is limited to Rs 500 per month. Inclusion of the right of maintenance under the Code of Criminal Procedure has great advantage of making the remedy both speedy and cheap. However, divorced wives who have received money payable under the customary personal law, are not entitled to claim maintenance under the Code of Criminal Procedure.

Under Hindu law, wife has an absolute right to claim maintenance from husband. But she loses her right, if she deviates herself from the path of chastity. Her right to maintenance is codified in the Hindu Adoptions and Maintenance Act, 1956. In assessing the amount of maintenance, court takes into account various factors like position and status of parties, reasonable wants of the claimant and obligations and liabilities of the husband. It also judges whether the wife is justified in living apart from husband. Justifiable reasons are spelt out in the Act.

Maintenance *pendente lite* (pending the suit) and even expenses of a matrimonial suit will be borne by either husband or wife if the other spouse has no independent income for his or her support. Same principle will also govern payment of permanent maintenance.

Under Muslim law, the Muslim Women (Protection of Rights on Divorce) Act, 1986 protects rights of Muslim women who have been divorced by or have obtained divorce from their husbands and provides for matters connected therewith or incidental thereto.

The Act *inter alia* provides that a divorced Muslim woman shall be entitled to (a) reasonable and fair provision and maintenance to be made and paid to her within *iddat* period by her former husband; (b) where she herself maintains children born to her before or after her divorce, a reasonable and fair provision and maintenance to be made and paid by her former husband for a period of two years from respective dates of birth of such children; (c) an amount equal to the sum of mehr or dower agreed to be paid to her at the time of her marriage or at any time thereafter acording to Muslim law, and (d) all property given to her before or at the time of marriage or after her marriage by her relatives or friends or by husband or any relatives of the husband or his friends.

In addition, the Act also provides that where a divorced Muslim woman is unable to maintain herself after the period of iddat, the magistrate shall order directing such of her relatives as would be entitled to inherit her property on her death according to Muslim law to pay such reasonable and fair maintenance to her as he may determine fit and proper, having regard to needs of the divorced woman, standard of life enjoyed by her during her marriage and means of such relatives and such maintenance shall be payable by such relatives in proportion in which they would inherit her property and at such periods as he may specify in his order.

Where such divorced woman has children, the magistrate shall order only such children to pay maintenance to her, and in the event of any such children being unable to pay such maintenance, he shall order parents of such divorced woman to pay maintenance to her.

In absence of such relatives or where such relatives are not in a position to maintain her, the magistrate may direct State Wakf Board established under Section 9 of the Wakf Act, 1954, functioning in the area in which the woman resides, to pay such maintenance as determined by him.

The Parsi Marriage and Divorce Act, 1936 recognises the right of wife to maintenance both alimony *pendente lite* as well as permanent alimony. Maximum amount that can be decreed by court as alimony during the time a matrimonial suit is pending in court, is one-fifth of the husband's net income. In fixing quantum as permanent maintenance, court will determine what is just, bearing in mind the ability of husband to pay, wife's own assets and conduct of the parties. The order will remain in force as long as wife remains chaste and unmarried.

The Indian Divorce Act, 1869 governs maintenance rights of a Christian wife. Provisions are the same as those under the Parsi law and the same considerations are applied in granting maintenance, both alimony *pendente lite* as well as permanent maintenance.

SUCCESSION

In 1925, the Indian Succession Act was enacted. Object of the Act was to consolidate the large number of laws which were in existence at that time. Laws governing succession to Muslims and Hindus were excluded from the purview of the Act. While consolidating the laws in respect of succession, two schemes, one relating to succession to property of persons like Indian Christians, Jews and persons married under the Special Marriage Act, 1954 and the other relating to succession rights of Parsis, were adopted.

In the first scheme, for persons other than Parsis, when a person dies intestate leaving a widow and lineal descendants, she would be entitled to a fixed share of one-third of property and lineal descendants shall be entitled to the remaining two-third. This law was amended subsequently with the object of improving rights of widow and it was provided that where intestate dies leaving a widow and no lineal descendant and the net value of the estate does not exceed Rs 5,000, she would be entitled to the whole of his property. Where the net value of the estate exceeds Rs 5,000, she is entitled *to a charge for the sum of* Rs 5,000 *with interest at four per cent* till payment and in the residue, she is entitled to her share. The Act imposes no restriction on the power of a person to will away his property.

Under the second scheme, the Act provides for Parsi intestate succession. A feature of the rule governing Parsi intestate is that like Hindu law and unlike Muslim law, there are separate rules for devolution of property of male and female Parsi intestates. For example, if a male Parsi dies leaving a widow and children, property will be divided so that the share of each son and widow will be double the share of each daughter. Further, when a male Parsi dies leaving one or both parents in addition to a widow and children, property will be so divided that father shall receive a share equal to half the share of a son and mother will receive a share equal to half the share of a daughter. Remarkable features of the Hindu Succession Act, 1956 are recognition of the right of women to inherit property of an intestate equally with men and abolition of the life estate of female heirs.

A vast majority of Muslims in India follow Hanafi doctrines of Sunni law. Courts presumed that Muslims are governed by Hanafi law, unless it is established to the contrary. Though there are many features in common between Shia and Sunni schools, there are differences in some respects. Sunni law regards Koranic verses of inheritance as an addendum to pre-Islamic customary law and preserves the superior position of male agnates.

Unlike Hindu and Christian law, Muslim law restricts a person's right of testation. A Muslim can bequeath only one-third of his estate. A bequest to a stranger is valid without the consent of heirs if it does not exceed a third of the estate, but a bequest to an heir without the consent of other heirs is invalid. Consent of heirs to a bequest must be secured after the succession has opened and any consent given to a bequest during the life time of the testator can be retracted after his death. Shia law allows Muslims the freedom of bequest within the disposable third.

LAWS OF PARLIAMENT

During 1989, 41 bills (including one Constitutional amendment) were enacted. Amendments of the Constitution so far made, with their scope and purpose appear in Chapter 31–General Information. A list of the bills is given in *Appendices*. Scope and purpose of some laws enacted during 1989 are:

1. *The Representation of the People (Amendment) Act. 1988 (1 of 1989):* The Act amends the Representation of the People Act, 1950 and the Representation of the People Act, 1951. Some of its important provisions are: (i) all employees/staff designated or nominated by states/others in connection with preparation, revision and correction of electoral rolls for and conduct of elections shall be deemed to be on deputation to Election Commission for that period and shall be subject to control, superintendence and discipline of Election Commission; (ii) "political party" has been defined as an association or a body of individual citizens of India registered

with Election Commission as a political party under Section 29 A of the Representation of the people Act, 1951; (iii) this Act amends Sections of the Representation of the People Act, 1951 dealing with disqualification of members of Parliament and state legislatures on conviction for certain offences; (iv) the Act increases the number of proposers to ten per cent of the total electorate of the constituency or ten such electors as proposers whichever is less for purpose of preventing frivolous candidates from contesting for election to Council of States and legislative councils of states; (v) it makes suitable amendments in the Representation of the People Act, 1951 to facilitate use of electronic voting machines and specifically deal with offences of booth capturing and rigging of elections and also to uphold these offences a corrupt practice; (vi) the Act provides for a term of imprisonment for three months and enhances the quantum of fine from Rs 250 to Rs 1,000 for disturbing election meetings, and (vii) besides other consequential amendments, the Act also deals with the offence of booth capturing, provides specific and penal provisions in the Representation of the People Act, 1951 and upholds it a corrupt practice.

2. *The Narcotic Drugs and Psychotropic Substances (Amendment) Act, 1989 (2 of 1989):* The Act amends the Narcotic Drugs and Psychotropic Substances Act, 1985. The Act of 1985 provides deterrent punishment for drug traffic offences. Even though major offences are non-bailable by virtue of the level of punishments, on technical grounds drug offenders were being released on bail. In order to plug certain loopholes in light of certain difficulties faced in the enforcement of the Act of 1985, this Act provides for the following: (i) to constitute a National Fund for Control of Drugs Abuse to meet expenditure incurred in connection with measures for combating illicit traffic and preventing drug abuse; (ii) to bring certain controlled substances which are used for manufacture of narcotic drugs and psychotropic substances under the ambit of the Narcotic Drugs and Psychotropic Substances Act, and to provide deterrent punishment for violation thereof; (iii) to provide that no sentence awarded under the Act shall be suspended, remitted or commuted; (iv) to provide for pre-trial disposal of seized drugs; (v) to provide death penalty on second conviction in respect of specified offences involving specified quantities of certain drugs; (vi) to provide for forfeiture of property and detailed procedure relating to the same, and (vii) to provide that offences shall be cognizable and non-ailable.

3. *The Direct Tax Laws (Amendment) Act, 1989 (3 of 1989):* After the enactment of the Direct Tax Laws (Amendment) Act, 1987, a large number of representations were received from experts, associations and tax payers requesting Government to withdraw certain amendments made in the Act of 1987, to remove their hardships. For this, this Act further amends the Income-tax Act, 1961 and the Direct Tax Laws (Amendment) Act, 1987 to withdraw certain amendments and to restore the old provisions.

4. *The Terrorist and Disruptive Activities (Prevention) Amendment Act,*

1989 (16 of 1989): The Terrorist and Disruptive Activities (Prevention) Act, 1987 was enacted in the background of escalation of terrorist activities in many parts of the country. The operation of the Act was restricted to a period of two years from the date of its commencement. This period was due to expire on 23 May 1989. On assessment of the situation, in consultation with states/UTs, it was felt necessary to continue the provisions of the Act for a further period of two years more to deal effectively with the problem of terrorist violence and disruptive activities. The Terrorist and Disruptive Activities (Prevention) Act, 1987 was amended by this Act.

5. *The Central Industrial Security Force (Amendment) Act, 1989 (20 of 1989):* Central Industrial Security Force (CISF) was raised under the Central Industrial Security Act, 1968 to provide protection and security to Central government industrial undertakings. The Force is expected to be in position to provide effective security to employees of these undertakings so that they could attend to their jobs without any fear while on duty. For this, the Act amends the short title of the principal Act to include the employees of all such industrial undertakings.

6. *The Representation of the People (Amendment) Act, 1989 (21 of 1989):* The Act makes consequential amendments in the Representation of the People Act, 1950, reducing voting age from 21 to 18 to give effect to the Constitution (Sixty-first Amendment) Act, 1988. It also empowers Election Commission to consolidate all information relating to delimitation of Parliamentary and assembly constituencies.

7. *The Assam University Act, 1989 (23 of 1989):* During the past decade or so there has been a persistent demand for establishment of a Central university in Assam. A decision to this effect was taken in 1985. The Act provides to establish and incorporate a teaching and affiliating university in Cachar district in the Barak valley of Assam.

8. *The Indian Railways Act, 1989 (24 of 1989).* The Indian Railways Act, 1890 was enacted at a time when railways in India were mostly managed by private companies. But now, except for a very small portion, the entire railway system has become part of Government. To give effect to the changes in the railways system from time to time, the Act had also undergone changes a number of times since its enactment in 1890. In addition, as some of the original provisions enacted in 1890 had continued without any change, a need for their replacement by new provisions more responsive to needs of the present day was felt. There had also been a demand, both within and outside Parliament for the re-enactment of the Act so as to reflect the large number of changes. It was, therefore, necessary to consolidate and amend the law relating to railways by a new Railway Act. The 1989 Act, while giving effect to the changes, provides, among other things, for following matters, namely,(i) The 1989 Act provides for constitution of railway zones, abolition of existing zones and appointment of General Managers as heads of these railway administrations; (ii) power

has been given to Central government to fix rates for carriage of passengers and goods over railways instead of existing provisions to fix only maximum and minimum rates for such carriage and leaving the fixation of specific rates to railway administrations. In addition, railway administrations are also being authorised to specify lump sum rates for carriage of goods, (iii) in accordance with certain judicial pronouncements, the 1989 Act provides for statutory recognition of railway receipt as a negotiable instrument; (iv) the said Act specifically provides for limiting monetary liability of railway administrations in respect of payment of compensation for loss, damage, etc., of goods. Provision has, however, been made for full liability subject to the condition that consigner, while entrusting goods to a railway administration for carriage, should declare the value of goods and pay a percentage charge on such value, and (v) the offences included in the 1890 Act have been rationalised and a few new offences have also been included in the 1989 Act. Punishments for some offences had not been changed since the enactment of the 1890 Act. Penalties provided for offences under the said 1890 Act have been made more stringent in the 1989 Act which would include, among other things, a minimum punishment for several offences.

9. *The Delhi Motor Vehicles Taxation (Amendment) Act, 1989 (25 of 1989):* With the manifold increase in vehicles over a period of time, system of collection of road tax of quarterly/half-yearly basis was inadequate to suit the convenience of general public and taxation authority. In such circumstances it was necessary to adopt a system which not only facilitates tax payers but also ensures full realisations of government revenues. Transport Development Council, an appex advisory body on road and road transport, considered this issue and recommended for adoption of one time lump sum road tax collection system in respect of non-transport vehicles such as two-wheelers, cars, jeeps, etc. The Act amends the Delhi Motor Vehicles Taxation Act, 1962 to overcome this problem. The Act provides for levy and payment of tax in respect of non-transport vehicles on one time basis after arriving at the lump sum figure by taking existing annual tax rates for ten years. If a vehicle owner has already paid tax for a period of ten years he will be exempted from any payment in future. It also empowers the Administrator to increase correspondingly the rate of refund by way of notification where the rate of tax has been increased. The Act also provides new schedules in place of the old ones.

10. *The Employees' State Insurance (Amendment) Act, 1989 (29 of 1989):* The Employees' State Insurance Act, 1948 provides for grant of cash benefits to employees in recognised contingencies of sickness, maternity and employment injury. It also provides for medical benefits in kind to employees and their families. Before the present enactment, the principal Act was applicable to non-seasonal factories and certain other establishments. Provisions of the principal Act have been extended, areawise, in a phased manner. The Act covered about 61.68 lakh employees in 580 industrial centres.

Total number of beneficiaries including family members for medical cover was about 2.73 crore. Some important amendments of the 1989 Act are: (i) children up to the age of 21 and infirm children without any age restriction have been included in the definition of family so as to make them eligible for medical benefit under this Act, (ii) number of representatives of the organisations of employers and employees in Employees' State Insurance Corporation has been raised from five to ten each to provide greater representation; (iii) Corporation has been empowered to make all appointments except that of Director General and Financial Commissioner; (iv) power has been given to the Corporation to frame regulations in respect of recruitment, salaries and allowances and other conditions of service of its employees; (v) a provision has been made for setting up of an independent machinery for recovery of arrears of employees' state insurance contribution, etc., and (vi) existing penal provisions have been amended with a view to making them more stringent.

11. *The Salary, Allowances and Pension of the Members of Parliament (Amendment) Act, 1989 (30 of 1989):* Every member of Parliament representing Union Territory of Andaman and Nicobar Islands and Union Territory of Lakshadweep is entitled to air travel facility along with his spouse or companion from the usual place of residence in the Island to the nearest airport on the main land of India. For the return journey, steamer facility is provided at present. On the recommendation of Joint Committee on Salaries and Allowances of Members of Parliament, this Act amends the principal Act to allow air travel facility for the return journey also from the nearest airport on the mainland

12. *The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989 (33 of 1989):* Despite various measures to improve socio-economic conditions of scheduled castes and scheduled tribes, they remain vulnerable. They are denied number of civil rights. They are subjected to various offences, indignities, humiliations and harassment. They have, in several brutal incidents, been deprived of their life and property. Serious crimes are committed against them for various historical, social and economic reasons. Under the circumstances, existing laws like the Protection of Civil Rights Act, 1955 and normal provisions of Indian Penal Code have been found to be inadequate to check these crimes.

The term 'atrocity' has not been defined so far. It is considered necessary that not only atrocity should be defined but stringent measures should be introduced to provide for higher punishments for committing such atrocities. It is also proposed to enjoining on states/UTs to take specific preventive and punitive measures to protect scheduled castes and scheduled tribes from being victimised and where atrocities are committed, to provide adequate relief and assistance to rehabilitate them. Therefore, this Act has been enacted to prevent the commission of offences of atrocities against the members of SC/ST and to provide for special courts for trial of such offences and for relief and rehabilitation of the victims of such offences.

13. *The Nagaland University Act, 1989 (35 of 1989)*: The need to have a separate university for the State of Nagaland has been felt for some time. Higher education needs of Nagaland are presently being served by North-Eastern Hill University. However, this arrangement has not been able to meet the expectations of the people of Nagaland. State government had been continuously pressing for a separate university. A decision was. taken in principle in September 1987 to establish a Central university in Nagaland to meet its special needs. Nagaland University will be a teaching-cum-affiliating university with jurisdiction over entire state with headquarters at Lumami.

14. *The Direct Tax Laws (Second Amendment) Act, 1989: (36 of 1989)*: This Act further amends the Income-tax Act, 1961, the Wealth-Tax Act, 1957 and the Gift-Tax Act, 1958. Since the passing of the Direct Tax Laws (Amendment) Act, 1989 and the presentation of the Finance Bill, 1989, a number of suggestions regarding simplification and rationalisation of the Act and also for giving certain tax concessions for the benefit of tax payers, were received by Government. Prime urgency for the passing of this Act was to help tax payers by removing certain anomalies and difficulties relating to new assessment procedure which came into force from 1 April 1989 and also to grant certain tax concessions. Some important amendments of the new Act are: (i) Section 6 of the Act has been amended with a view to liberalising criteria for determining residential status so that to facilitate non-resident Indians in staying in India for a longer period to look after their investment without losing their non-residential status; (ii) it amends Section 48 of the Act in order to provide for computation of capital gains in case of non-resident Indians by calculating cost price and sale price in foreign currency in which the investment was made instead of taking the value in Indian currency, and (iii) a new Section 33AC has been inserted in the Act providing for reserves for shipping business. Amount credited to the reserves account shall be utilised by assessees before the expiry of a period of eight years for acquiring a new ship for purposes of their business and until acquisition of a new ship for purposes of their business other than for distribution by way of dividend or profits for remittance outside India as profits or for creation of any asset outside India.

15. *The Small Industries Development Bank of India Act, 1989 (39 o 1989)*: There has been a long standing demand of small industries for an apex bank. This new Act provides: (i) establishment of a statutor corporation Small Industries Development Bank of India as wholly-owne subsidiary of Industrial Developmentt Bank of India, to function as th principal financial institution for promotion, financing and development o industry in small scale sector and to coordinate functions of institution engaged in promoting, financing and developing industry in that sector; (ii the Bank would give special attention to export-oriented industrial units i that sector, and (iii) resources of the Bank will mainly comprise contributions from Industrial Development Bank of India in the form of loans an

shares which may include market borrowings and short term and long term funds from Reserve Bank of India and loans from Government.

16. *The Customs (Amendment) Act, 1989 (40 of 1989):* The Act has been enacted with a view to giving some relief to small and medium artisans, generally illiterate, enaged in cutting and polishing of rough diamonds and manufactures of diamonds. It aims at curbing smuggling of high-valued items like gold, watches, etc. The Act also provides to increase quantum of minimum punishment from one year to three years in relation to smuggling of gold, manufactures of gold, watches, etc.

27 Youth Affairs and Sports

SPORTS is a state subject under Constitution of India and the role of Union government is mainly promotional. It lays down guidelines to national sports federations for their improved functioning, provides financial assistance for organising coaching camps and participation in international tournaments and renders grants to state sports councils. It establishes institutes for training coaches in different sports disciplines, etc. Government also serves as a clearing house of information. A number of states have introduced sports as compulsory subject in schools and some of them have started sports schools, sports hostels, etc. In December 1984, Department of Sports was redesignated as Department of Youth Affairs and Sports.

YOUTH SERVICES

Youth programmes seek to enable young people to improve their skills and personality for effective participation in the process of development and provide them opportunities to participate in the process of national development.

NATIONAL SERVICE SCHEME

National Service Scheme (NSS) aims at involvement of college students on a voluntary and selective basis in programmes of social service and national development. It was started in 1969 with a coverage of about 40,000 students which gradually increased to about 9.35 lakh students in 1988-89. It is being implemented in all states and union territories and covers about 5,000 colleges. The scheme has now been extended on an experimental basis to cover students at plus two stage also in some states and union territories.

Emphasis under the scheme has been on programmes of rural reconstruction and activities for improvement of conditions of economically and socially weaker sections. Besides undertaking programmes like construction and repair of roads, school buildings, village ponds, tanks and tree plantation, NSS students participate in programmes like: (a) environmental enrichment and conservation; (b) health, family welfare and nutrition; (c) improvement in status of women; (d) social service in welfare institutions; (e) production-oriented programmes; (f) work during emergencies, and (g) education and recreation including adult and pre-school education programmes.

NSS students also help local authorities and communities in implementing various relief and rehabilitation programmes. As part of the involvement of students during the vacation in constructive work, large scale camping programmes are organised. In such programmes some aspects of local needs in rural areas are covered. Nearly half of the enrolled strength of NSS volunteers takes part in special camping programmes organised in adopted villages/urban slums under the theme "Youth for Rural Development'.

A new dimension has been added to NSS programmes with activities relating to "Youth for Better Environment" to help create awareness among students about ecological problems of the country. Some of the activities under this programme are: (a) removal of water-hyacinth weeds from lakes; (b) pre-plantation operations like cleaning, alignment, trench fencing, digging pits and manuring; (c) plantation of trees on hill tops and community places; (d) construction of soak pits and compost pits; (e) construction and laying of parks; (f) environmental cleanliness, and (g) creating awareness among students, teachers and people about problems of environment. From 1986, NSS volunteers have also been involved in Mass Programme for Functional Literacy. About 5,000 camps were organised by March 1990 to create a positive environment for the success of the International Literacy Year 1990.

NSS programmes pay special attention to participation in National Literacy Mission, promotion of family welfare and 20-Point programme. The programmes also stress on character building; improvement of environment; national integration; community singing; development of culture; physical fitness, and involvement of SC/ST students. There are 15 regional NSS centres for liaison at state and university levels and for coordinating programmes of its different units. State level NSS cells have been constituted.

NEHRU YUVA KENDRA

The scheme of *Nehru Yuva Kendra* (NYK) started in 1972 aiming to serve non-students and rural youth, seeks to improve their personality and employment capability. From a modest beginning of 30 odd NYKs there are at present 401 NYKs. By 1990 it is proposed to cover all districts in the country. The *Kendras* organise activities like youth leadership training programmes, national integration camps and community singing. They also organise social services like work camps, setting up of bio-gas plants, vocational training centres, youth clubs and coaching camps and tournaments for rural and indigenous sports.

NYKs have trained youth in construction, maintenance and operation of bio-gas plants, bee-keeping, para-military training, popularisation and construction of smokeless *chulhas* in villages, construction of community assets like roads, community centres, etc. They also organise a number of national integration camps every year in different parts of the country. At many places, scheme of TRYSEM (Training Rural Youth for Self

Employment) is being implemented by NYKs. Efforts are being made to diversify these activities to bring greater benefit to youth.

To oversee the work of NYKs Nehru Yuva Kendra Sangathan has been set up as an autonomous body under Department of Youth Affairs and Sports.

SCOUTING AND GUIDING

Scouting and guiding, an international movement, aims at characte building of boys and girls. It inculcates in them a spirit of loyality partiotism and thoughtfulness for others. It also promotes balanced physical and mental development of boys and girls. Bharat Scouts and Guides is the major organisation in the country to promote this activity. A India Boy Scouts Association is another organisation engaged in thi movement and works largely among non-student youth.

INTERNATIONAL EXCHANGE OF YOUTH DELEGATIONS

Under cultural exchange programmes, youth delegations are sent abroa accompanied by officials concerned with youth policy formulation. Simila delegations are also received from abroad.

PROMOTION OF NATIONAL INTEGRATION

This scheme provides (a) exchange of visits of young persons from one pa of country to the other to help them familiarise with environment, life styl social customs, etc., of people in different parts and to appreciate vastne of the country, its varied systems and yet a basic oneness which wou engender among participants a pride in being an Indian, and (organisation of national integration camps of students and non-stude youth through NYKs, voluntary agencies and educational institution During such integration camps, they are exposed to inter-region traditions, customs, literary and cultural heritage and are also made awa of matters of national importance such as freedom movement, eradicatio of social evils like casteism, untouchability and dowry system. It also hel in inculcating nationally accepted values—democracy, socialis secularism, etc.

NATIONAL SERVICE VOLUNTEER SCHEME

This was started in 1977-78 with the objective of providing opportunity youth, particularly those who completed their first degree course, for the full time involvement on a voluntary basis in nation building activities fo specific period. The scheme seeks to provide the youth avenues for creati and constructive work, suited to their educational background a aptitudes. Volunteers working in the field are attached to NYKs, NS Scouts and Guides and voluntary organisations.

EXHIBITIONS FOR YOUTH

This scheme was started in 1986-87. Under it, financial assistance is given to states/UTs, voluntary agencies, educational institutions including universities and NYKs for organising exhibitions of folk dance and folk songs; paintings, art and crafts; books; sports and developments in other fields such as education, agriculture, industry, etc. The Department also organises exhibitions on these themes at national level on its own or in collaboration with other departments/agencies.

PROMOTION OF ADVENTURE

The scheme aims at inculcating a spirit of risk-taking, team work, ready and vital response to challenging situations and endurance among the youth. Financial assistance is provided for undertaking activities like mountaineering, trekking, hiking, exploration for collection of data, study of flora and fauna in mountains, forests, deserts and sea, coastal sailing, raft expeditions, cycling, etc. Assistance is also provided for training as well as establishment and development of institutions to facilitate such activities. The Department extends assistance to Indian Mountaineering Foundation, New Delhi for meeting expenditure on its establishment and programmes.

Financial assistance has been given for introducing para-sailing, hang gliding, sea exploration and sailing in adventure programme. Important among these programmes were 'Sailing Round the World', 'Freedom Forty' cycle expedition, 'Maitree Yatra' and 'Sea to Mountain' expedition.

YOUTH HOSTELS

These hostels built to promote youth travel, are meant to provide cheaper accommodation to young persons when they go on educational tours, excursions and visits to historical and cultural centres. They also foster the feeling of national integration and better understanding through such cultural contacts. Construction of youth hostels is conceived as a joint venture between Central and state governments. While the Centre bears cost of construction, state governments provide developed land free of cost with water and electricity connections, approach roads and staff quarters. Twenty seven youth hostels have been constructed and commissioned at Amritsar, Aurangabad, Bhopal, Dalhousie, Darjling, Dimapur, Gandhinagar, Hyderabad, Jaipur, Madras, Mysore, Naini Tal, Panaji, Punchkula, Pondicherry, Patnitop, Naharlagum, Ernakulam, Kurukshetra, Port Blair, Puri, Trivandrum, Shillong, Agra, Imphal, Namchi and Calicut.

Hostels at Hassan (Karnataka), Madurai (Tamil Nadu) and Agartala (Tripura) are expected to be completed shortly.

Youth hostels at Tirupati (Andhra Pradesh), Golaghat, Nagaon, Guwahati (Assam). Patna (Bihar), Bhiwani, Gurgaon (Haryana), Karwar (Karnataka), Tura (Meghalaya), Ukhrul (Manipur), Aizawl (Mizoram), Mokokchung (Nagaland), Gopalpur-on-Sea, Joshipur, Koraput, Bhubaneshwar (Orissa), Patiala, Roopnagar, Sangrur (Punjab), Jodhpur (Rajasthan), Thanjavur (Tamil Nadu), Uttar Kashi, Mussoorie, Lucknow, Allahabad (Uttar Pradesh), Manali (Himachal Pradesh) and Wynad (Kerala) are under different stages of construction.

TRAINING OF YOUTH

The scheme started during 1986-87, provides financial assistance to youth sponsored by states/UTs, NYKs, educational institutions and registered voluntary organisations for training in various fields e.g., animal husbandry, dairy/poultry farming, agriculture, cooperatives, health education and food nutrition, management at local level and propagation of scientific methods of using smokeless chulhas, bio-gas plants and other non conventional energy sources, etc.

FINANCIAL ASSISTANCE TO YOUTH CLUBS

The scheme introduced in 1986-87, aims at promotion of youth movement Financial assistance for various youth activities e.g., library and reading facilities, sports activities, cultural programmes, promotion of fitness culture, etc., is given under the scheme to clubs registered not earlier than two years.

FINANCIAL ASSISTANCE TO VOLUNTARY ORGANISATIONS

Financial assistance is given to voluntary youth organisations for organising programmes of vocational training to help improve functional capabilities of young persons enabling them to take up full employment, self employment or subsidiary employment. Such assistance is also provided for organising camps for promoting national integration and also taking up social service activities, conducting surveys and research work, holding of seminars, etc., and organising youth leadership training programmes aimed at developing critical awareness of their environment.

NATIONAL YOUTH AWARD SCHEME

This scheme was launched in 1985 to encourage and recognise outstanding work by young persons and voluntary youth organisations for national development and social services. It also aims at encouraging youth to develop a seuse of responsibility to their community and also to improve their own potential as good citizens.

Under this scheme, up to 50 awards including one to a voluntary youth organisation are given every year. Persons selected for the award are given a medal, scroll and Rs 5,000 each. In case of voluntary youth organisations the amount of cash award is Rs 1,00,000.

SPORTS

NATIONAL SPORTS POLICY

National sports policy focuses attention on directions to be followed ar objectives to be achieved. The policy resolution is based on: (i) a time-bound programme to provide infrastructure of sports and physical education in villages and towns and appropriate equipment to sportsmen and women; (ii)efforts at governmental level to preserve playfields and open space; (iii) availability of nutritional diet to the sportsmen and women; (iv) identification and nurturing of talent from an early age; (v) integration of sports and physical education with school curriculum as a regular subject; (vi) provision of adequate incentives for achieving excellence in sports; (vii) setting up of sports institutions; (viii) special consideration to sportspersons of eminence in employment; (ix) involvement of voluntary organisations for promotion of sports; (x) implementation through national sports federations of effective training and competition programme for preparation of national teams to participate in international competitions after such participants have achieved the required qualifying standards; (xi) encouraging competitions in the disciplines recognised for Olympic Games, Asian Games and Commonwealth Games and for those disciplines in which world federations exist, and (xii) involvement of mass media for spreading sports consciousness in the country.

DEVELOPMENT OF SPORTS INFRASTRUCTURE

Central government supplements efforts of state governments, state sports councils, etc., towards improving and creating infrastructural facilities for sports. Grants are given for construction of stadia, swimming pools, gymnasia, sports complexes, etc. Grants are also given to federations and sports bodies for holding annual state level coaching camps. Mostly financial assistance is given on a sharing basis of 50:50 between the Centre and the sponsoring agency, subject to specified limits, through concerned states/UTs. For hilly areas, Central contribution is 75 per cent subject to a maximum of certain specified ceiling. Scope of this scheme has since been enlarged to assist state governments in construction or development of one training complex having facilities of international standard. Centre bears 50 per cent of the project cost subject to a maximum of Rs 2 crore. So far two such complexes, one at Goa and the other at Pune, have been assisted.

Financial assistance is also given for development of basic sports facilities in secondary and senior secondary schools, particularly in rural areas. Under the scheme, initially one school will be selected in each taluka/block at a place other than district, sub-division or block headquarters. Central assistance of one lakh rupees is given for an athletics track, purchase of durable equipment like goal posts, hurdles, etc., and for construction of a gymnasium. This assistance is conditional on the school employing a full time physical education teacher and making a provision of at least Rs 15,000 per year for maintenance of equipment and purchase of consumable stores.

GRANTS FOR SYNTHETIC TRACKS AND ARTIFICIAL SURFACES

Grants for laying synthetic athletics tracks and artificial hockey turfs was also formulated for implementation during Seventh Plan. Assistance to state governments is limited to 50 per cent of the expenditure subject to a maximum of Rs 50 lakh per project.

Synthetic athletics tracks are available at present at JLN Stadium, Delhi; NIS, Patiala; Salt Lake Stadium, Calcutta, and University Stadium, Trivandrum. Such tracks are under installation at Haryana Agriculture University, Hisar; Malabar Hills, Bombay; NIS, Bangalore; NIS, Gandhinagar and Ludhiana. Artificial surfaces are available at National Stadium and Shivaji Stadium in New Delhi, NIS Patiala, Calcutta, Gandhinagar and Bangalore, Sports College, Lucknow and Railway Stadium, Gwalior. This facility is under installation at Amritsar, Ranchi, Jalandhar, Pimpri and Bombay.

SPORTS PROJECT DEVELOPMENT AREA

Sports project development area (SPDA) scheme was launched in 1989. Under it, whole country is to be divided in about 80 SPDAs each comprising 80 to 100 community development blocks. These centres are to be utilised for training budding sportspersons in specified disciplines to be identified locally. Central financial assistance is 50 per cent of the project cost subject to a maximum of Rs 50 lakh. Running cost of each SPDA centre is to be borne by Central government.

PROMOTION OF SPORTS IN UNIVERSITY SECTOR

This scheme with a view to promoting sports and games in university sector is implemented through University Grants Commission (UGC), Association of Indian Universities (AIU) and Netaji Subhas National Institute of Sports (NSNIS). Financial assistance for development of sports infrastructure in colleges and universities is extended through UGC. AIU oversees organisation of coaching camps and sports competitions among college and university students and preparation of Indian university contingents for international competitions. Three hundred scholarships (Rs 3,600 per annum each) are awarded through NSNIS to outstanding college and university sportspersons. Scholarships are also renewed in subsequent years subject to holders maintaining or improving their performances.

A running trophy named after Maulana Abul Kalam Azad is awarded to the university showing best all round performance in sports. From 1988-89 cash awards of Rs 50,000, Rs 25,000 and Rs 10,000 are being given to universities securing first, second and third places respectively. Another set of cash awards of Rs 50,000, Rs 30,000 and Rs 20,000 are being awarded from 1988-89 to first, second and third winner universities in inter-university tournaments in each of 13 specified disciplines.

SPORTS TALENT SEARCH SCHOLARSHIP

This scheme introduced in 1970-71 seeks to provide facilities to young boys and girls at school to develop their aptitude and provide them nutritious diet. *Under it, 1,200 national level scholarships* and 2,095 state level scholarships are given every year, each of the value of Rs 2,700 and Rs 1,800 per annum respectively on the basis of sports competitions at national and state levels. The scholarships are also renewed in subsequent years provided the holder improves his performance. In 1988-89 a total number of 5,000 scholarships were awarded.

PROMOTION OF WOMEN SPORTS

National Sports Championship for Women (NSCW), first organised in 1975, has now become a significant national event. The programme is organised by Sports Authority of India. National level championship is preceded by lower level competitions which arc conducted by states/UTs at block, district and state level. Financial assistance is given to the tune of Rs 1,000 per block, Rs 3,000 per district, Rs 10,000 per division and Rs 10,000 per state level tournament for bigger states, Rs 5,000 for others.

RURAL SPORTS TOURNAMENT

A countrywide programme of Rural Sports Tournament was launched by Centre in 1970-71 to involve major segment of youth in rural areas in the mainstream of country's sports activities and to spot and nurture sports talent. It is estimated that over 20 lakh rural youth participate in this programme every year. Competitions are organised by state governments with financial assistance from Centre.

PROMOTIONAL INCENTIVES

Incentives are provided for promotion of sports activities under two types of schemes: (a) incentives scheme for promotion of sports and games in schools through prize money. Under it cash prizes of Rs 10,000 each are given to schools winning district level tournaments in athletics, hockey, basketball and volleyball for both boys and girls (for football it is given for boys only) and (b) special awards to sportspersons winning medals in international sports events. Such awards are given to sportspersons/teams winning major international sports events. Awards range from Rs 50,000 to Rs 1.50 lakh.

NATIONAL WELFARE FUND

National Welfare Fund for sportspersons was constituted by Government in 1982 for giving financial assistance to outstanding sportspersons, who are no longer active in sports and are in indigent circumstances.

TRAVEL GRANTS

Under the scheme international passage cost is provided to sports scholars and research workers for specialised training and research abroad. It aims at encouraging research and specialised study in matters relating to sports. In 1988-89 seven persons received such assistance.

SCHOLARSHIPS FOR TRAINING OF SPECIALISTS AND OUTSTANDING SPORTSPERSONS

This is a new scheme in operation from 1989. Under it, scholarships are given to: (a) specialists for training abroad in sports/adventure programmes and (b) active outstanding sportspersons for specialised coaching/training abroad.

ARJUNA AWARDS

Arjuna Awards were instiuted in 1961 to recognise talented sportspersons distinguishing themselves in different sports disciplines. Each Arjuna award winner is entitled to receive a bronze statue and a scroll of honour. Awardees are also given a sum of Rs. 20,000 along with a monogram, a blazer and a tie. So far 381 sportsmen and women have been given the awards.

DRONACHARYA AWARDS

Dronacharya Awards were instituted in 1985 to help improve the standard of sports and games. It seeks to enhance the prestige of coaches in recognised disciplines of sports and give them public recognition for outstanding and meritorious services rendered by them in shaping sportspersons to level of excellence in international events thereby bringing glory to the country. These awards are given to coaches who have trained sportspersons or teams making outstanding achievement in the year for which the award is given and consistently have very good achievements to their credit for three preceding years. It comprises a plaque, a scroll, a blazer and a tie in addition to a cash prize of Rs 40,000. So far seven persons have been honoured with this award.

ORGANISATIONS

NETAJI SUBHAS NATIONAL INSTITUTE OF SPORTS

Netaji Subhas National Institute of Sports (NSNIS), Patiala was established in 1961. It has been entrusted with the responsibility of: (a) producing and training high calibre coaches in various sports disciplines; (b) implementing national coaching scheme through a countrywide network of regional centres, and (c) assisting national sports federations in coaching and training of national sports teams for international competitions. The Institute has six regional centres.

LAKSHMIBAI NATIONAL COLLEGE OF PHYSICAL EDUCATION

Primary objective of the College (co-educational) is to provide facilities for training high calibre leadership in physical education in educational institutions and other organisations. The College at Gwalior provides teacher training facilities of Graduate and Post-graduate studies besides

M.Phil. and doctorate programmes in physical education. Since its inception 1957, the College has produced about 3,106 Graduate and Post-graduate teachers. It also provides extension services and refresher courses for in-service personnel and implements on agency basis, some of the Central programmes like national physical fitness programmes, national prize competition for published literature in physical education and sports, etc. The College has established a National Resource and Documentation Centre in Physical Education to serve as a clearing house for professional information in this field.

SPORTS AUTHORITY OF INDIA

Sports Authority of India (SAI) was registered as a society on 16 March 1984 for promoting sports and games and for managing infrastructure and other facilities created for the IX Asian Games held in New Delhi in 1982. Since then, this Organisation has made rapid strides and now controls both Netaji Subhas National Institute of Sports at Patiala and Lakshmibai National College of Physical Education, Gwalior besides regional centres at Bangalore, Gandhinagar, Patiala, Calcutta and Imphal. Another regional centre at Lucknow will be established shortly. Its regional centre at Bangalore has been developed as a 'Centre of Excellence'. Branches of National Institute of Sports are to be set up at Bangalore, Gandhinagar and Calcutta. One of the most important activities of SAI is to train and coach national teams for participation in international tournaments.

SPORTS PROTOCOL

The year 1989-90 saw an increase in international cooperation in the fields of physical education, sports and youth affairs. Eleven sports protocols and 45 cultural exchange programmes with various countries were signed to secure competent coaches for giving special training to participants for their success in international sports competitions.

NATIONAL YOUTH POLICY

National Youth Policy is likely to be announced shortly. A high-powered inter-ministerial coordination committee with Prime Minister as Chairman, is to be set up to coordinate and implement various programmes relating to youth. Total youth population at present is estimated at 2,210 lakh— 1,134 male and 1,076 female, accounting for 50 per cent of the total literates in the country (1981 census). It is likely to reach 2,970 lakh in 1990-91.

It is also proposed to set up Central/state level youth councils to provide thrust and direction for effective implementation of the provisions of the policy.

28 India and the World

BASIS OF FOREIGN POLICY

BASIC parameters of India's foreign policy were laid down by India's first Prime Minister, Jawaharlal Nehru, more than four decades ago.

On the threshold of independence, Nehru declared in September 1946,

> "We propose, as far as possible, to keep away from the power politics of groups aligned against one another, which have led in the past to world wars and which may again lead to disasters on an even vaster scale. We believe that peace and freedom are indivisible and the denial of freedom anywhere must endanger freedom elsewhere and lead to conflict and war.....
>
> The world, in spite of its rivalries and hatreds and inner conflicts, moves inevitably towards closer cooperation and building up of a world commonwealth. It is for this 'one world' that free India will work, a world in which there is free cooperation of free peoples, and no class or group exploits another."

Jawaharlal Nehru took the initiative to convene the first-ever Asian Relations Conference in 1946 to announce to the world that Asia had come into its own. The responsibility assumed by India was "not necessarily for leadership", as Nehru put it, "but for taking the initiative sometimes and helping others to cooperate."

International environment in late forties began to worsen and as the cold war mounted and rival military groupings began to emerge, India adopted a policy of non-alignment to promote peace and cooperation with all nations in order to devote its energy and resources to national development and social progress. Non-alignment meant making independent decisions on international issues without being tied to any particular country or group of countries. It was within the broad framework of this policy that India took initiative to develop friendly relations with its neighbours, supported the cause of countries still trying to free themselves from colonial domination and worked for the defusion of international crises that arose in different parts of the world from time to time.

COLONIAL ISSUES

Having witnessed some of the worst aspects of racial arrogance during over two centuries of colonial domination India naturally gave priority to anti-colonial and anti-racial issues. The country extended its friendship and support to the people of Indonesia in their struggle against the colonial rule. At India's initiative, an 18-member conference was held in New Delhi in January 1949, which called upon the United Nations to take immediate steps towards independence of Indonesia. This was the first concrete manifestation of Asian solidarity. Thereafter, India lent similar support to other freedom movements and called upon colonial powers to grant independence to subject peoples.

NEW ROLE IN FIFTIES

In 1950, the world faced its most serious crisis after Second World War. India refused to take sides in the Korean war and maintained her independent policy while calling for a peaceful settlement. India also warned against the danger of expansion of conflict if the armies of one side moved closer to the other. This constructive and impartial approach received recognition when India was chosen chairman of the United Nations Repatriation Commission to deal with the issue of prisoners of war. Similarly, throughout the Indo-China crisis in the fifties, India, though not a party to the negotiations at the first Geneva Conference, actively worked behind the scenes and influenced the final decisions taken at that Conference about the future of Vietnam, Cambodia and Laos. India also served as chairman for three international commissions for nearly two decades.

In 1956, when the Suez crisis threatened international peace and security following British-French-Israeli invasion of Egypt, India condemned this action and mobilised support at the United Nations and elsewhere to put an end to the intervention. Its proposals were incorporated in the eventual plans for peaceful negotiations and settlement. India's principled support to Egypt contributed to the withdrawal of foreign troops from Egyptian territory and recognition of Egypt's sovereignty over the Suez Canal. India also supplied a contingent of troops for the United Nations Emergency Force in the Sinai Peninsula. Similarly, the country played a leading role during the Congo crisis and Indian troops served with distinction in the UN Force which helped preserve the unity and territorial integrity of this African country. Indian diplomats and military officers also served with the UN Peace Keeping Force in Lebanon and Cyprus.

COMMONWEALTH

India played a key role in the transformation of the British Commonwealth into the present Commonwealth. It also took active interest in promoting stability and progress in the newly independent countries through direct economic assistance and through organisations like the Commonwealth.

India's initiatives helped in the subsequent evolution of the Colombo Plan, which played a significant role in the economic development of the region.

In recognition of India's role in the Commonwealth as well as in world affairs, the largest-ever meeting of the Commonwealth Heads of Government was held, for the first time, in New Delhi from 23 to 29 November 1983. India's stand at the Commonwealth Heads of Government Conference at Nassau from 16 to 22 November 1985 ultimately led to the adoption of the Declaration of World Order.

India participated in the London Review Meeting of the Commonwealth leaders held from 3 to 5 August 1986 under the terms of the Nassau Accord on Southern Africa. Leaders of Australia, the Bahamas, Canada, India, Zimbabwe and Zambia agreed on the immediate adoption of additional selective measures against South Africa in addition to those outlined in the Nassau Accord to increase pressure on the Pretoria regime.

At the Commonwealth Heads of Government Meeting (CHOGM) in Vancouver from 13 to 17 October 1987, India played a major role in rallying opinion for continuing mandatory sanctions against racist South Africa and providing international assistance to Frontline States. The Summit formed an eight-member Foreign Ministers' Committee, with India as a member.

At the CHOGM held in Kuala Lumpur in October 1989, it was agreed that existing sanctions against South Africa will not only have to be continued but escalated gradually. The Commonwealth meeting also endorsed India's proposal for the Planet Protection Fund.

NON-ALIGNMENT

With the emancipation of peoples from colonial yoke, India's policy of non-alignment gained large scale acceptance. The first Non-aligned Conference was held at Belgrade in 1961 in which 25 countries took part. The Belgrade Declaration on peace evoked global response. The basic thrust of the movement is in favour of peace, disarmament, development and independence. India was elected as the chairperson of the movement and hosted the Non-aligned Summit in New Delhi in March 1983. Even after handing over its chairmanship to Zimbabwe in September 1986, India sustained her efforts to create consensus within the Non-aligned Movement (NAM) on major international issues. She expressed her solidarity and support for the Contradoras, the regional peace initiative symbolised by the Guatemala Accord.

The changed international environment as a result of Super Power detente and the increasing consensus among NAM members on making the Movement more effective, were the main issues before NAM in 1988. Basic objectives of India's foreign policy *vis-a-vis* NAM did not suffer any change during the rule of both Indira Gandhi and Rajiv Gandhi.

The new Government of V.P. Singh has also reiterated that it would continue to adhere to the policy of non-alignment.

EIGHTH NAM SUMMIT

At the eighth Summit Conference of the Non-aligned countries at Harare in September 1986, warm tributes were paid to India's contribution during the term of its chairmanship and unity and strength of the non-aligned movement. The Summit also established the AFRICA (Action for Resisting Invasion, Colonialism and Apartheid) Fund with the objectives of assisting Frontline States and liberation movements in southern Africa to withstand South Africa's acts of aggression and economic sabotage. India was entrusted with the chairmanship of the nine-member Fund Committee. A Summit meeting of the Africa Fund Committee Member-States was held in New Delhi in January 1987.

NINTH NAM SUMMIT

At the ninth Non-aligned Summit held in Belgrade in September 1989, India called upon fellow members to fight the economic domination of the North and declared that so long the domination and quest for domination in any form prevailed, the success of NAM would not be complete. She also proposed the establishment of a Planet Protection Fund under the aegis of the United Nations, for global cooperation to protect the environment. India emphasised that the Fund would be used to protect the environment by developing and purchasing conservation/compatible technologies in critical areas. Environmental protection, India stressed, could not be isolated from the general issue of development and its degradation is an issue which transcends not only national boundaries but also in some ways narrowly conceived national interests.

DISARMAMENT

India has always been in favour of total disarmament. She has never missed an opportunity to proclaim her firm opposition to nuclear weapons. She is also committed to the peaceful uses of nuclear energy and is opposed to any moves or measures which are discriminatory in this field. In particular, the convening of the Geneva talks between the USA and the USSR regarding reduction in nuclear armaments, was warmly welcomed by India since she feels it is the primary responsibility of the super powers to take meaningful steps in this direction.

Former Prime Minister Rajiv Gandhi in his address to the 40th Anniversary Commemorative Session of the United Nations in New York, stressed "the need to cure the world of insanity of nuclear militarism and let man's creative genius be enlisted on behalf of enrichment and not destruction." He reiterated the objectives of the Delhi Declaration issued by the Six-Nation Summit in January 1985, consisting of the leaders of Argentina, Greece, India, Mexico, Sweden and Tanzania, urging a twelve-month suspension of all nuclear weapon tests and offering facilities for the process of verification. The leaders of the six nations met again on 6 August 1986 in Mexico and urged the two major nuclear weapon states to agree on a moratorium on nuclear-testing and put forward a concrete proposal to assist in achieving adequate verification arrangements for the same. The eighth Conference of Heads of State of Non-aligned countries which met in Harare in September 1986 also issued an appeal on disarmament to the USA and the USSR.

In the crusade for nuclear and general disarmament, India along with other five nations of the Six-Nation Initiative welcomed on 22 January 1988, the INF Treaty between the Soviet Union the USA as a historic step. Their Declaration in Stockholm appreciated the resumption of the dialogue and called for verification and compliance with agreements in this field.

Addressing the UN General Assembly's third special session on disarmament on 9 June 1988, the then Prime Minister Rajiv Gandhi asked UN to get behind an "action plan" which would commit all countries—the existing nuclear powers—to eliminate world's all nuclear weapons by the year 2010. He proposed that this "action plan" should be conducted in three stages, which would result not only in the elimination of nuclear threat but the establishment of a new UN "comprehensive global security system" that would ensure "peaceful coexistence for a new, just, equitable and democratic world order." His detailed proposal also called for the establishment by the end of this century of "single integrated multilateral verification system to ensure that no new nuclear weapons were produced anywhere in the world."

Two other initiatives proposed by India related to New Technologies and the qualitative Arms Race and Disarmament of the Warheads of Nuclear Missiles covered by the INF Treaty between the USA and the USSR.

At the Conference on Disarmament, India played a leading role in the Group of neutral and non-aligned countries. She coordinated the Group's position on the issues of Cessation of the Nuclear Arms Race and Nuclear Disarmament and Prevention of Nuclear War and other Related Matters.

India continued to press for commencement of negotiations in these areas and comprehensive Nuclear Weapons Test Ban Treaty. In the Ad hoc Committee on Prevention of an Arms Race in Outer Space, India's proposals on strengthening the existing legal regime attracted widespread support. India also participated in UN-sponsored meetings of seismologists for monitoring Nuclear Test Ban agreements and negotiations on a convention prohibiting chemical weapons.

In the First Committee of the UN General Assembly, India introduced a new resolution calling for an assessment of scientific and technological trends and evaluation of their impact on the international security environment with a view to ensuring that scientific and technological developments are used solely for peaceful purposes and for the common benefit of mankind.

An international NGO conference Towards a Nuclear Weapon Free and Non-Violent World was held in New Delhi from 14 to 16 November 1988. Most of the important international peace movements and disarmament-related organisations participated in the conference. It unanimously adopted a Joint Statement which contained a number of new ideas and proposals on disarmament.

ECONOMIC ISSUES

World economy has been marked by slow growth in recent years. It is evident from the rates of growth of output which declined from three per cent in 1985 to 2.8 per cent in 1986. Trade continued at 4 per cent growth in 1986, commodity prices declined further, new lending to developing countries has shrunk and debt service has become even more diffucult. Continuing stagnation of capital flow to developing countries resulted in a net transfer of resources of around US dollar 3,000 crore in the fiscal year 1986. Official Development Assistance (ODA) remained below half the internationally agreed level of 0.7 per cent. Many developing countries experienced a decline in per capita income, and Gross Domestic Product (GDP) of developing countries as a group came down to 3.6 per cent in 1986 from 4.2 per cent in 1985. Protectionism has continued to increase. The inter-dependence between North and South which is now widely recognised also continues to increase.

The seventh and eighth NAM Summits had proposed constructive and pragmatic approaches for the revival of growth and development through multilateral cooperation and for arresting the retreat from multilateralism for development. They also proposed long term structural reforms towards the attainment of the New International Economic Order (NIEO). At the ninth NAM Summit held in September 1989, India called upon non-aligned countries to fight the economic domination and quest for domination in any form.

The Commonwealth Heads of Government Meeting held in Kuala Lumpur in October 1989 expressed concern that the problem of indebtedness, adverse trade, protectionism and poverty continued to confront developing countries.

At the request of the chairman of the Group of 77, India coordinated the negotiations on the resolution on the report of the Trade and Development Board. India also played an active role in the resolution on preparations for an international development strategy for the Fourth United Nations Development Decade. India's role in facilitating a consensus on the resolution of food and agriculture was highly appreciated.

India attended the first meeting of the Standing Ministerial Committee on Economic Cooperation, set up by the eighth NAM Summit in Harare. It adopted a Declaration and issued a Communique which highlights the salient concerns of the developing countries in the present world economic situation.

India also participated actively in the negotiations on the economic declaration of the NAM Ministerial Meeting in Cyprus. The meeting adopted a detailed paragraph on the Uruguay Round on Multilateral Trade Negotiations. This was for the first time that all non-aligned countries identified and accepted specific elements which can constitute a common position of developing countries in the negotiations. India played a key role in the negotiations leading to this outcome.

India's commitment to promote cooperation, in the spirit of South-South cooperation, with other developing countries of Africa, Asia and Latin America found expression in the bilateral scheme of assistance under the Indian Technical and Economic Cooperation (ITEC) Programme operated by the Ministry of External Affairs. This bilateral programmme of assistance supplements other multilateral schemes such as the Colombo Plan and the Special Commonwealth African Assistance Programme. ITEC Programme launched in 1964 has steadily expanded over the years to cover, presently, over 70 countries in Africa, Asia and Latin America, with a budgetary outlay of over Rs 20 crore.

SOUTH ASIAN ASSOCIATION OF REGIONAL COOPERATION

India played an active role in promoting South Asian Regional Cooperation from its inception. The first South Asian Summit was held in Dhaka in December 1985, culminating in the South Asian Association for Regional Cooperation (SAARC). The second Summit took place in Bangalore from 15 to 17 November 1986.

SAARC Secretariat was inaugurated on 16 January 1987 in Kathmandu. The third Summit also held there took important decisions with a bearing on the future course of SAARC. The Regional Convention signed on the Suppression of Terrorism was ratified by India on 6 August 1988. An agreement establishing a Food Security Reserve was reached which would enable member states to draw on food stocks in an emergency.

The fourth Summit held in Islamabad in December 1988 provided the opportunity for a complete review of SAARC activities during 1988. The Summit took the following major decisions: (a) inclusion of education as an area of cooperation and entitling Supreme Court Judges and Members of Parliament of member countries to a special SAARC Travel Document with exemption from visa while travelling in the region, for closer and more frequent contacts among the people of member countries; (b) to prepare a regional perspective plan SAARC 2000: A Basic Needs Perspective based on the aggregation of development targets set by individual member countries in core areas of interest such as food, clothing, shelter, education, primary health care, population planning and environmental protection; (c) to examine the proposal to establish a Centre for Human Resource Development, and (d) to hold South Asian Festivals.

Noteworthy developments so far are:

(i) Agreement establishing SAARC Food Security Reserve became operational from 12 August 1988.

(ii) SAARC Regional Convention on Suppression of Terrorism came into force on 22 August 1988.

(iii) Terms of reference and methodology for comprehensive study on the Causes and Consequences of Natural Disasters and Protection and Preservation of Environment have been agreed upon.

(iv) Agreement on studies to identify specific constraints to the growth of intra-regional trade and economic coperation.

India announced a contribution of Rs 2 crore for SAARC activities for the year 1989-90.

The new Government under the leadership of V.P. Singh has stated that it would revitalise and strengthen ties with neighbours in South Asia and make the SAARC framework "more dynamic".

SRI LANKA

The historic Indo-Sri Lanka Agreement of July 1987 continued to be the framework for improvement and strengthening of bilateral relations. The most important of the steps taken under the Accord was the successful holding of elections in the North-eastern Province on 19 November 1988 leading to the creation of Provincial Councils in the Island. With the setting up of the Provincial Council government under Varadaraja Perumal, the institutional framework for greater autonomy for Tamils got initiated. Sri Lanka also passed the 16th amendment to its Constitution giving Tamil equal status as an official language along with Sinhala. Earlier, legislative action had already been taken to end the vexing problem of citizenship for Tamils of Indian origin. With the return of near normal situation more than 34,000 Tamil refugees returned to Sri Lanka from India.

India agreed on the pullout of Indian Peace Keeping Force from Sri Lanka by 31 December 1989 under an agreement signed between the two countries on 18 September 1989.

Later in December, the Government of V.P. Singh initiated talks with Sri Lanka to help improve bilateral relations.

Sri Lanka Foreign Minister Ranjan Wijeratne visited India from 7 Decmber 1989 and had talks with his counterpart I.K. Gujral. He also met Prime Minister V.P. Singh and handed over a letter from President Premadasa. V.P. Singh however reiterated on 15 December 1989 that safety and security of Tamils in Sri Lanka would have to be ensured as the two Governments jointly endeavour to expeditiously de-induct the remaining IPKF from Sri Lanka. I.K. Gujral stated on 28 December 1989 that it should be possible to complete IPKF withdrawal by the end of March 1990 keeping the logistical and other factors in mind. IPKF was finally withdrawn from the Island on 24 March 1990.

PAKISTAN

India has consistently sought to develop friendly and good neighbourly relations with Pakistan in accordance with the Simla Agreement. India welcomed the emergence of a democratic government in Pakistan, which hopefully would facilitate the normalisation of bilateral relations.

In 1988, both President Venkataraman and the then Prime Minister Rajiv Gandhi had occasion to visit Pakistan. President Venkataraman led a high-level delegation to Islamabad for the funeral of late President Zia-ul-Haq on 20 August 1988. Rajiv Gandhi visited Islamabad from 29 to 31 December 1988 to attend the 4th SAARC Summit. There he had intensive discussions with Prime Minister Benazir Bhutto on bilateral and other issues of mutual interest. These talks culminated in the signing of three agreements, namely, (i) Prohibition of Attack against Nuclear Installations and Facilities, (ii) Cultural Cooperation Agreement and (iii) Avoidance of Double Taxation of Income Derived from International Air Transport. First Cultural and Educational Exchange Programme was signed in July 1989.

In order to maintain a continuous dialogue with Pakistan to help improve bilateral relations, a number of important official level meetings were held during 1988 and 1989. Third meeting of Indo-Pak Joint Commission was held after four years, besides another meeting at Foreign Secretary level. Special Envoy of Pak Prime Minister and her Foreign Minister visited India in January 1990.

India has taken note of Prime Minister Benazir Bhutto's statements that she wants to resolve all outstanding bilateral problems within the framework of the Simla Agreement and that Pakistan would not like to interfere in India's internal affairs. It was in pursuit of this spirit that India and Pakistan held bilateral talks in 1989 over the Siachen issue.

Also, the new Government under the leadership of V.P. Singh has reiterated that it would spare no efforts to resolve outstanding bilateral issues with neighbouring countries consistent with India's national interests.

In an interview on 3 December 1989, Prime Minister V.P. Singh stated that he favoured a dialogue with Pakistan to ensure that a nuclear race does not start in the sub-continent. He added, 'we should certainly avoid the path of going nuclear. Otherwise, it is going to be a tremendous strain on our resources.'

BANGLADESH

Efforts to further improve friendly relations with Bangladesh continued. Events in that country were dominated by the disastrous floods in September 1988. In keeping with its responsibilities as a friendly neighbour, India was the first country to respond to an appeal by Bangladesh for relief.

India has been urging Bangladesh for cooperation in harnessing the Brahmaputra to control its flood potential and utilise its abundant waters for the benefit of both countries. India's comprehensive proposal first made in 1978, was renewed to President Ershad when he visited India on 29 September 1988. A Joint Task Force of water resources experts was set up to discuss possible cooperation for flood management. Extension of the term of Indo-Bangladesh Joint Economic Commission for another five years, renewal of Indo-Bangladesh Trade Agreement for another three years, renewal of Inland Water Transit and Trade and Minister of External Affairs I.K. Gujral's visit to Bangladesh were some of the highlights.

About 45,000 Bangladeshi *Chakma* refugees continue to remain in India almost three years after they first arrived. India continued to urge

Bangladesh to create the necessary conditions so that the refugees gain confidence and return to their homes.

NEPAL

Despite differences between India and Nepal over the trade and transit issue, the tradition of exchanges of bilateral visits between the two countries continued. Trade and Transit Treaties with Nepal expired on 23 March 1989. To resolve the issue, Foreign Minister level talks were held in March 1989. Differences, however, persisted. The External Affaris Minister of India held talks in Kathmandu again in August 1989. He also met King Birendra. Later Nepal King met the then Prime Minister Rajiv Gandhi at Belgrade in September 1989 during the ninth Non-aligned meet. This Summit meeting turned out to be useful. India has always expressed its readiness to discuss the entire gamut of Indo-Nepal relations with a view to resolving outstanding differences in an amicable manner. This was reflected in what Prime Minister V.P. Singh stated on 3 December 1989. He said 'there has always been a good understanding between the two countries. Even if there are a few differences, they can certainly be sorted out in an amicable way'. A delegation of Nepalese Foreign, Defence and Commerce Secretaries visited New Delhi in February 1990 As a result of further efforts, agreement on trade has been reached at and all transit points reopened.

BHUTAN

Traditionally close and friendly relations between India and Bhutan were further strengthened. There were important exchanges of visits. From India, the Foreign Secretary, the then Prime Minister Rajiv Gandhi and President R. Venkataraman visited Bhutan during 1988. From Bhutan, Deputy Minister of Planning Dasho Chenkyab Dorji and Foreign Minister Lyonpo Dawa Tsering visited India. During these visits fruitful discussions on subjects of mutual interest were held. Cooperation flourished in the economic field. In October 1988. the prestigious Chukha Hydel Project built entirely with Indian assistance was jointly inaugurated by President R. Venkataraman and His Majesty the King of Bhutan. India continues to provide experts and specialists to Bhutan in the field of forestry, industry, telecommunications, hydel survey and education, etc.

THE MALDIVES

India has the most cordial and friendly relations with the Republic of Maldives. When foreign mercenaries invaded Male in the early hours of 3 November 1988, India responded to their request for immediate military assistance to protect their independence and sovereignty. Indian troops landed in Male in less than fourteen hours of receiving the appeal and speedily brought the situation under control. Indian Navy conducted a successful commando operation on the high seas and rescued Maldivian hostages who had been seized by the fleeing mercenaries.

President Gayoom paid a two-day visit to India in December 1988. Withdrawal of Indian troops from Maldives was completed on 3 November 1989. Minister for External Affairs I.K. Gujral later visited the Maldives in January 1990. Waiving of visa requirement for nationals of Maldives up to 90 days was also announced. Prime Minister V.P. Singh paid a visit there in June 1990.

BURMA

Burma is a close neighbour with whom India shares a long and sensitive border. Relations between the two countries have traditionally been cordial and without any major problems. India, was, therefore, concerned at the serious unrest which erupted in that country during 1988 While this was essentially an internal affair of that country, statements by Indian leaders made clear India's sympathy for the democratic aspirations of the people of Burma. In keeping with India's tradition of not turning away people who come to its borders to seek shelter, Burmese citizens were allowed to stay in camps in Mizoram and Arunachal Pradesh.

AFGHANISTAN

India continued to take an active interest in the rapidly changing situation in Afghanistan. Signing of the UN-sponsored Geneva Agreements on Afghanistan in April 1988 was an important step towards a peaceful political settlement of the Afghan problem. While welcoming these accords, India reiterated its stand for a sovereign, non-aligned and independent Afghanistan and further felt that Afghans themselves should be allowed to decide upon their future without external pressures. President Najibullah paid an official visit to India in May 1988 for an exchange of views. India and Afghanistan called for the proper implementation of the Geneva accord. India remained in close touch with Afghanistan on all matters of mutual interest and provided assitance worth Rs 10 crore for relief and rehabilitation of the Afghan refugees. In addition India is also assisting Afghanistan in areas such as public health, small scale industry, education, etc. A mid-term review meeting of the Indo-Afghan Joint Commision on Economic, Technical, Trade and Cultural Cooperation was held in Kabul in June 1988.

INDIAN OCEAN

India believes that the continued super power naval presence in the Indian Ocean remains a factor contributing to tension and instability. She continued to press for a conference on the Indian Ocean at an early date but not later than 1990, as stipulated in the UN General Assembly resolution on the subject. India reiterated the call for withdrawal of all military forces of outside powers from the Indian Ocean, so that it can emerge as a Zone of Peace. India still remains firmly committed to elimination of all foreign military presence from the Indian Ocean and complete dismantling of bases and other facilities used by outside powers in the area.

SOUTH-EAST ASIA

The mutual desire to further widen and diversify bilateral cooperation between India and the countries in South-East Asia was evidenced by exchange of several official delegations leading to increased interaction in economic, commercial and other fields.

INDO-CHINA

India's relations with the three Indo-China states remain extremely cordial. Relations with Vietnam were marked by exchange of visits at high levels. Prime Minister Rajiv Gandhi paid a one-day official visit to Vietnam in April 1988. The third Indo-Vietnamese Joint Commission meeting was held in January 1989. An agreement in principle was reached in April 1990 on signing a Trade Protocol between India and Vietnam. A Special commemorative stamp on Ho Chi Minh was issued and a road in New Delhi named after him in May 1990. Kampuchean Prime Minister Hun Sen was in India for a brief working visit in November 1988. Apart from discussing bilateral relations, the purpose of the visit was to consult with Indian leaders, the Kampuchean question. In December 1988, Minister of State for External Affairs K. Natwar Singh toured Vietnam, Laos, Thailand, Malaysia, Indonesia and Singapore as Prime Minister's special envoy on Kampuchea, to discuss progress in the resolution of the Kampuchean problem.

India's friendly relations and economic cooperation with Indo-China countries were maintained through Indian Technical Cooperation Programme.

AUSTRALIA

There was a marked increase in exchanges with Australia in the field of trade, science and technology, mining, coal, agriculture, energy and railways. India participated in the bi-centennial celebrations of Australia. A new Cultural Exchange Programme for 1989-91 was signed and the eleventh meeting of the Indo-Australia Joint Trade Committee was held in Canberra in May 1988. Australian Prime Minister R.J.L. Hawke visited India in February 1989.

FIJI

The situation in Fiji deteriorated further as the effect of two military coups of 1987 seeped into the fabric of daily life. Internal Security Decree and the

Sunday Observances Decree restricted the activities of Fijians of Indian orgin and strained racial relations. The draft of a new Constitution was approved by the Interim Government despite protests by deposed Prime Minister Dr. Bavadra and Indian ethnic members of the Fijian Parliament. Government of India issued a statement regretting that the draft had not given just and equitable representation to different communities and contained several provisions that were undemocratic, discriminatory and detrimental to the interests of peace, stability and racial harmony in Fiji. Leaders of the Indian community have rejected the draft. While institutionalising ethnic Fijian political dominance, the draft Constitution also discriminates against commoner Fijians. India has called for restoration of the democratically elected government and revocation of all such decrees. New Delhi also continued its trade ban with Fiji.

EAST ASIA

CHINA

Rajiv Gandhi's visit to China in December 1988, the first ever by a Prime Minister of India to China in thirty-four years, was of great importance and historic significance. It marked a new beginning in India-China relations. Rajiv Gandhi held discussions on bilateral, regional and international issues with Chinese Premier Li Peng, Chairman of the Central Military Commission Deng Xiaoping, General Secretary of the Chinese Communist Party Zhao Ziyang and Chinese President Yang Shangkun. The two Governments signed an Agreement on Cooperation in Science and Technology, an Agreement relating to Civil Air Transport and an executive programme for 1988-90 under the Agreement for Cultural Cooperation. Earnest and indepth discussions were also held on the boundary question. There was recognition that a favourable climate and conditions for a fair and reasonable and mutually acceptable solution of the question, should be created through sincere and unremitting efforts by both countries. It was decided to establish a Joint Working Group which will address the question of an overall boundary settlement and ensure the maintenance of peace and tranquillity in border areas. In addition, it was agreed to develop relations actively in other fields also. Another Joint Group on economic relations, trade, science and technology would be set up at the Ministerial level.

First meeting of the Joint Working Group on the boundary question was held in Beijing in June/July 1989. The two sides agreed that the emphasis should be on looking forward into the future in a practical and realistic manner. Wu Zueqian, Chinese Vice Premier visited India in October 1989. The Joint Working Group on economic relations, trade and science met in New Delhi in September 1989. India and China signed a trade protocol for 1989-90 under which China agreed to step up imports from India. The new Government headed by V.P. Singh has stated that the process of further understanding and cooperation with China would be continued. It has reiterated that the bilateral issue could be resolved in a 'fair and reasonable manner'.

JAPAN

India's relations with Japan in economic, commercial, cultural and scientific fields witnessed further progress. Indo-Japan relations received a new impetus with the visit of Japanese Prime Minister to India in 1984 and Indian Prime Minister's visit to Japan in 1985. Festival of India was held in Japan from April to October 1988. This was held in more than thirty cities of Japan. The highlights were the rendition of Indian music and display of paintings, sculpture and tribal art. The then Prime Minister Rajiv Gandhi visited Tokyo on 15 April to inaugurate the Festival. President R. Venkataraman represented India at the funeral of Emperor Hirohito in February 1989.

Japan's Official Development Assistance (ODA) to India was Yen 8,790 crore. The country is the largest bilateral donor to India in gross terms.

The Government under the leadership of V.P. Singh has stated that economic cooperation with Japan would be further strengthened. Japanese Prime Minister visited India in May 1990.

WEST ASIA AND NORTH AFRICA

India's relations with the countries of West Asia and North Africa region saw a further intensification and consolidation in all important areas-political, economic and cultural. An important development in the region was the renewed international focus on Palestinian question as a result of the Palestinian uprising in the West Bank and the Gaza Strip against continued Israeli occupation. In October 1988, Chairman Yasser Arafat visited India to brief Indian leaders on the then prevailing situation there. He was assured of India's full support. The historic proclamation of an independent Palestine State was made on 15 November 1988. India was among the first countries to recognise it. PLO embassy in New Delhi was renamed as 'Embassy of the State of Palestine'. The then Prime Minister Rajiv Gandhi visited Syria in June 1988. Wide ranging discussions on bilateral, regional and international issues of common interest with Syrian leaders gave a renewed impetus to mutual ties. Rajiv Gandhi's visit to Jordan in July 1988 provided further fillip to bilateral economic cooperation and continuing close political dialogue. Earlier, Crown Prince of Jordan visited India in April 1988. Relations between India and Egypt witnessed further intensification. Minister of State for External Affairs K.K. Tewari visited Egypt in October 1988. India's relations with Sudan, Somalia and Djibouti in the Horn of Africa remained friendly. India signed an agreement with Djibouti on cultural, scientific and technical cooperation. In the Maghreb region, India maintained its close consultations and cooperation with Algeria. The meeting of the Indo-Algerian Joint Commission was held in March 1988. With Tunisia also, bilateral contacts were strengthened both in the political and economic spheres. India's relations with Libya remained good. Diplomatic relations were restored between India and Morocco on 21 October 1988. The respective embassies started functioning from 21 November 1988. India continued efforts to bring an early end to the Gulf conflict through regular contacts with Iraq, Iran and other concerned countries. Though the Indo-Iranian Joint Commission did not meet during 1988, efforts continued to expand bilateral economic interaction. The Eleventh Session of the Indo-Iraqi Joint Commission held in October 1988 in Baghdad, identified areas for intensified bilateral economic cooperation. Iraqi Minister of Transport and Communication visited India in February 1990. India's relations with Oman and People's Democratic Republic of Yemen also remained cordial.

AFRICA (SOUTH OF SAHARA)

India's friendly relations with the countries of Africa (South of Sahara) were further strengthened. India continued to play a leading role at the United Nations and other international fora in supporting the struggle of the People of South Africa and Frontline States in southern Africa against the abhorrent system of apartheid in South Africa. India warmly welcomed the release of ANC leader Nelson Mandela and invited him to visit India. At the second meeting of the Commonwealth Committee of Foreign Ministers on South Africa in Toronto in August 1988, India ensured that the question of sanctions against the Pretoria regime remained in the forefront. India continued to support the demand for immediate Namibian independence as envisaged in the UN Security Council Resolution 435 of 1978. In this context, India warmly welcomed the conclusion of the Brazzaville Protocol which laid a definite framework for the implementation of Resolution 435. The President of SWAPO visited India in October 1988. India was one of the first countries to establish diplomatic relations with Namibia which became independent on 21 March 1990. India is providing personnel to the civilian component of the UN Transition Assistance Group which is headed by General Pram Chand (Retd.) of India. President of Angola Jose Eduardo dos Santos visited India in October 1988. India is providing officials to the UN Angola Verification Mission which would oversee the return of Cuban forces from Angola. Organisation of African Unity (OAU) celebrated its silver jubilee in Addis Ababa in which India participated in May 1988. The existing friendly relations with Mozambique were further strengthened with the visit of Joaquim Alberto Chissano, President of Mozambique and Madam Chissano in May 1988. Governor General of Mauritius Sir Veerasamy Ringadoo visited India with Lady Ringadoo in November 1988. At the invitation of the Government of Mauritius Vice President S.D. Sharma went there with a delegation of MPs and a cultural troupe to participate in the 20th anniversary celebrations of the independence of Mauritius.

AFRICA Fund was set up at the Harare Summit of the Heads of State/Government of the Movement of Non-aligned countries in September 1986. It has so far received pledges in cash, kind and project assistance equivalent to US dollar 41.3 crore from 52 countries. At AFRICA Fund Summit of January 1987, India announced a contribution of Rs 50 crore spread over a period of three years. Projects being taken up or under consideration under the Fund are in transport, human resource development agro-industry, agricultural sector and supply of food-stuffs, medicines and other essential commodities. The Third meeting of the AFRICA Fund Committee at the level of Senior Officials was held in Lima, Peru in August 1988. It reviewed the progress on the activities of the Fund. The Fourth such meeting was held in New Delhi in February 1989. It took stock of the progress of the Fund, emphasised the need for urgent implementation of projects planned, put the donors and recipients in direct touch with each other and decided about the future of Fund.

EASTERN EUROPE AND SOVIET UNION

India's traditionally close and friendly relations with the USSR and other socialist countries of Eastern Europe showed further improvement. These visits and the decisions taken by the Joint Commissions with many of these countries added stimulus and lent greater content to India's relations.

President R. Venkataraman paid a state visit to the USSR in July 1988 and participated in the closing ceremony of the Festival of India there. President Gorbachev visited India in November 1988 and had extensive discussions with the President and the Prime Minister. He also participated in the closing ceremony of the Festival of Soviet Union in India and received the Indira Gandhi Prize for Peace, Disarmament and Development. Gorbachev's visit, his first ever abroad after becoming President, provided opportunity to both sides to reiterate their mutual desire to maintain the tradition of regular high-level exchanges which have given a new character and dynamism to Indo-Soviet relations in recent years. A Joint Summit Statement signed during the visit set out shared perceptions on bilateral and international matters. Yuli Vorontsov, Soviet Deputy Foreign Minister and Special Envoy of Soviet President Gorbachev, met Prime Minister V.P. Singh on 22 December 1989 and laid a very special emphasis on economic cooperation. India and the Soviet Union agreed that the relationship should be raised to 'qualitatively higher levels'. During his meeting with External Affairs Minister I.K. Gujral, he expressed the hope that relations would not only continue at the traditional level of friendship but would be further strengthened which was equally reciprocated by India. Commerce Minister Arun Nehru as Special Envoy of Prime Minister, had wide ranging discussions with Soviet President Gorbachev in Moscow in May 1990.

Bilateral trade with the USSR rapidly increased. The Trade Plan for 1990 has a target of Rs 8,800 crore.

The unprecedented and unique Festivals of India and the USSR in each other's country gave a fresh impetus to all aspects of bilateral relations.

Following the earthquake which devastated Armenia, relief supplies were airlifted to the Soviet Republic. A special fund called Prime Minister's Armenia Earthquake Relief Fund was opened to receive contributions from organisations and individuals.

Relations between India and Czechoslovakia improved with the visit of President R. Venkataraman to that country in September 1988. Both sides agreed that there was considerable unutilised potential for further strengthening the existing economic and other ties.

Indo-Hungarian relations received a major impetus when the then Prime Minister Rajiv Gandhi went to Hungary in 1988. An agreement for cooperation between the television organisations of the two countries was signed during the visit. The 40th anniversary of the establishment of diplomatic relations was celebrated in both the countries in November 1988.

Traditionally friendly relations continued to develop with Yugoslavia. Close bilateral cooperation was further consolidated with Prime Minister Rajiv Gandhi's visit to that country in July 1988 and September 1989.

India's diplomatic relations with Albania which had been under suspension, were revived with the presentation of credentials by Albanian Ambassador in August 1988.

India, on 28 December 1989 welcomed the movement for a "more humane and liberal system" in Romania and assured that it would extend her support in rebuilding Romanian economy. External Affairs Minister I.K. Gujral said that radical, yet admirably peaceful changes have taken place all over Eastern Europe in the direction of democratisation, political pluralism and evolution of more representative systems and institutions reflecting popular aspirations.

WESTERN EUROPE

India values its relations with West European countries. European Community is India's biggest trading partner. Its presence in India is constantly increasing in joint ventures, flow of investments and transfer of technology, playing a significant role in terms of bilateral assistance through multilateral organisations. In 1988, there were important developments in India's relations with the West European countries as a result of exchange of several high level visits. President R. Venkataraman paid a five-nation visit including U.K., FRG, France, Portugal and Malta in April 1990. A Cultural Exchange Programme between India and Portugal for 1990-92 was signed in New Delhi in May 1990.

Rajiv Gandhi's visit to the Federal Republic of Germany in June 1988 was a visit by an Indian Prime Minister to that country after 1971. The visit resulted in establishing rapport at the highest political level, maintaining a political dialogue on a regular basis and stimulating the interest of the German business community in India.

The Prime Minister visited Spain and Turkey in July 1988. This was the first visit to Spain by an Indian Prime Minister. It was timely in the context of Spain's membership of the Community. The visit laid the groundwork for positive developments in Indo-Spanish relations. In last few years relations with Turkey have developed very rapidly.

President R. Venkataraman paid state visits to three West European countries in 1988: the Netherlands, Finland and Cyprus. Dutch participation in several important areas of India's economy is noteworthy and this visit confirmed bilateral friendship and understanding and shared interest in developing mutually beneficial ties. President Koivisto of Finland visited India in 1987. President Venkataraman's return visit continued the political dialogue between the two countries. President Venkataraman's visit to Cyprus marked continuation and consolidation of the political dialogue and an affirmation of India's interest in the preservation of the unity, integrity and sovereignty of that country.

Maltese Prime Minister visited India from 7 to 13 January 1989, the last such visit from that side being in the year 1968. Between Malta, a strategically placed non-aligned country, and India there has been interaction within the Non-Aligned Movement, the Commonwealth and the United Nations.

Indo-French relations have over the years acquired a solid base. French President Mitterrand visited India in February 1989. He was present at the inauguration of the year-long Festival of France in Bombay on 3 February. French Prime Minister visited India in January 1990.

Turkish President Evren paid a state visit to India (22 to 26 February 1989). This first ever visit by a Turkish President was an important step forward in giving political depth to relations between the two countries.

Within the West European region, India's relations with the Economic Community have special importance. The Community is India's largest trading partner, accounting for the largest chunk of India's international trade deficit. Indo-EEC Troika meeting was held in Bonn in June 1988 at which international developments of interest to the two sides were reviewed. India is one of the few individual countries with which the Community has arrangement for Troika meetings and the importance of this dialogue will increase with the growth of political cooperation within the Community under the aegis of the European Political Cooperation. India reiterated on 20 December 1989 that economic cooperation with EEC would be further strengthened.

UNITED STATES OF AMERICA

The main thrust in Indo-US relations was towards consolidating the positive trends that have developed in recent years. Initiatives taken during the Prime Minister's visit to Washington in October 1987 were followed up. An indication of the improving climate in Indo-US relations was the number of high-level political and official exchanges which took place during the year. Chairman of the US House of Representatives Sub-Committee on Asian and Pacific Affairs Stephen Solarz and two other members of the Sub-Committee also visited India and had wide-ranging discussions on regional and bilateral issues.

India received the Cray XMP -14 Super Computer in October 1988. It is being used for weather forecasting. Government of India has applied for another Super Computer-the Cray YMP-132 for Indian Institute of Science, Bangalore.

During Indian Prime Minister's visit in October 1987, Science and Technology Initiative (STI) was extended for an additional three years beyond 1988 till 30 September 1991.

Notwithstanding the progress in Indo-US relations, some differences still remain on regional and international issues. India expressed the protest and resentment against her inclusion in the list of countries accused of unfair trade practices under the US Trade Act, 1988. India has taken an exception to the US decision for keeping her again in the same list for the year 1990.

India's Defence Minister's visit to America in June 1989 focused on Indo-US defence cooperation. India's concern at US supply of sophisticated military equipment to Pakistan and Pakistan's nuclear programme was also conveyed.

US House of Representatives rejected in June 1989 an amendment seeking to stop developmental assistance to India on grounds of humanitarian violations and 'Indian Blockade of Nepal'.

An agreement on Avoidance of Double Taxation was concluded with the United States in September 1989. The new Government assured on 20 December 1989 that it would 'build upon the new trends of a constructive and cooperative relationship with the United States'. It continues with the friendly relations with USA. This is marked by a member of frequent bilateral visits of the leaders of the two countries during 1990.

CANADA

Cordial relations between India and Canada continued. Annual Ministerial Consultations (AMC) held in Canada in May 1988 reviewed the Indo-Canadian relations and identified new areas of cooperation. Growing economic cooperation and Canadian assistance for various projects in India were also assessed. Problem of Canada-based Sikh extremists became an important issue in bilateral relations. Canada followed a firm policy in suppressing terrorism and abuse of Canadian laws and rights by terrorists.

LATIN AMERICA AND CARIBBEAN COUNTRIES

Traditionally friendly relations with countries of Latin America and the Caribbean continued to develop. Exchange of high level visits and signing of bilateral agreements furthered cooperation in international fora. India's support for the aspirations of the people of the region gave impetus to bilateral ties. Vice President Dr. Shanker Dayal Sharma as leader of Indian delegates participated in Commemoration of the 150th Anniversary of the Indian arrival in Guyana on 5 May 1838. He also visited Surinam, Trinidad and Tobago and had bilateral discussions with the leaders of these countries. During his visit to the Parliament House in Port of Spain, the Speaker's Chair gifted by India was installed for the first time.

Central America continued to be an area of tension. The Guatemala Peace Accord was signed by five Central American Presidents in August 1987 and followed by their meeting in Costa Rica in January 1988 to review its implementation. These developments have helped defuse the situation. On 23 March 1988, a ceasefire agreement was signed between the Nicaraguan Government and the Contras. In May 1988, India co-sponsored a UN General Assembly Resolution on The Situation in Central America: Threats to Peace and International Security and Initiatives for Peace and Special Programmes for Economic Assistance. The Vice President of Guatemala conveyed the gratitude on behalf of the Central American Governments for India's initiative and support. India welcomed the signing of La Paz Joint Declaration by Presidents of five Central American States, namely, El Salvador, Guatemala, Costa Rica, Honduras and Nicaragua on 14 February 1989.

India and Mexico signed a Cultural Exchange Programme for 1988-90. Dr. Miguel D'Escoto Borckmann, Foreign Minister of Nicaragua visited India in August 1988.

In Chile, General Pinochet lost the Presidential Plebiscite in October 1988, India welcomed the democratic process instituted in Chile following General Pinochet's defeat and hoped that restoration of democracy in Chile would go forward smoothly. Official visits to Peru from 4 to 8 December 1988 and to Havana on 2 January 1989 helped further strengthen bilateral ties.

OVERSEAS INDIANS

There are about 1.2 crore persons of Indian origin residing abroad, including those having Indian nationality. In the last few decades, a number of Indian nationals have emigrated to the Gulf, Western Europe and the USA. Overseas Indians are incrcasignly being recognised as a valuable asset for India as a bridge of understanding between India and the country of their domicile. A Special Coordination Division has been set up in the Ministry to develop social, economic and cultural contacts between India and the overseas Indians. This unit also disseminates information about matters of interest to overseas Indians like investment procedures in India through her missions. It is the consistent policy of the Government that persons of Indian origin who have taken foreign nationality should identify themselves with and integrate in the country of their domicile. As regards Indian nationals, Government continues to exercise due care for their safety and welfare.

MISSIONS ABROAD

To project India's image abroad and to safeguard national interests, there are 140 Missions abroad, besides Honorary Consulate Generals/Consulates.

A new Consulate General was established in HO Chi Minh City (Vietnam) in January 1990. India also proposes to open a Mission in Malta soon.

PASSPORT OFFICES

There are 22 Passport Offices in the country besides two Liaison Offices at Shimla and Trivandrum.

EXTERNAL PUBLICITY

The year long celebrations of the birth centenary of Jawaharlal Nehru, the first Prime Minister and maker of modern India and one of the founders of the Non-Aligned Movement started on 14 November 1988. These celebrations, along with the 40th Anniversary of India's Independence on 15 August 1988, served as catalysts to the continuing efforts of the External Publicity (XP) Division to project the image of a modern and dynamic India with a rich cultural heritage. The XP Division regularly briefs foreign and Indian press, about New Delhi's policy on various issues. The Division also brings out publicity literature on India depicting different facets of national life in English, Arabic, French, German and Spanish. From July 1988, XP Division started bringing out a monthly journal 'India-Perspectives' in English, French and Spanish. The Division is placing increasing emphasis on the circulation of audio-visual material by Indian missions abroad.

INDIAN COUNCIL FOR CULTURAL RELATIONS

Since 1950, Indian Council for Cultural Relations (ICCR) has been working to project India's culture abroad and to bring home the finest manifestations of culture from the outside world.

The Council continued its focus on countries and regions having traditional and historical ties with India. Like Centre for Africa, set up in 1986-87, two other centres *viz.*, Centre for Latin America and Centre for South and South-East Asia have also started functioning under the Council. Two new Cultural Centres were set up in Jakarta and Mauritius. This has helped in intensive cultural exchanges with these regions. Four new sections opened within the Council are: Audio-Visual Reference; Contemporary Arts; Traditional Arts and Crafts, and In-House Publications. The Council also has a well-equipped library.

Apart from the Soviet Festival in India, the Council arranged more than sixty cultural programmes in which Indian and foreign artistes were presented. The series entitled 'Guru Shishya Parampara', 'Parivara Parampara' and 'Choreographic Compositions' was well received by critics and artistes alike. A contingent of 10 cultural troupes consisting of 126 artistes was sent to participate in the 150th Anniversary Celebrations of the arrival of Indians in Guyana. The Council sponsored visits of 82 cultural troupes covering 64 countries, besides sending another 68 distinguished visitors to 40 countries.

Twenty fifth Anniversary of 'Organisation of African Unity' was marked by celebrations of African Unity Day on 25 May 1988. A public meeting and film show was organised on 16 June 1988. SOWETO Day was also celebrated on 16 June 1988.

Indian Cultural Centres in Fiji, Guyana, Surinam, Indonesia, USSR and Mauritius continued to work towards creation of greater awareness and appreciation of India's cultural heritage.

The Council publishes a number of journals in English, Hindi and some foreign languages—'Indian Horizons' and 'Africa Quarterly' in English, 'Gagananchal' in Hindi, 'Thaqafat-ul-Hind', in Arabic, 'Rencontre Avec I Inde' in French and 'Papeles de la India' in Spanish.

The Council also participated in some of the important International book fairs and exhibitions: London International Book Fair (March 1988), International Fair for Books and Press in Guyana (May 1988), Malaysia book fairs and exhibitions: London International Book Fair (March 1988), (September 1988), Frankfurt Book Fair (October 1988) and Cairo International Book Fair (January/February 1989).

FOREIGN SERVICE TRAINING INSTITUTE

During the year 1988-89, Foreign Service Training Institute (FSTI) was placed under the full time charge of a Dean in the rank of Secretary to Government of India. Several new courses were introduced. As a part of mid-career training programme, FSTI organised a course for Commercial Representatives serving abroad in February 1989. It geared up its activities to meet requests for providing appropriate orientation to officials from other Government of India Departments/Ministries being posted abroad and also for training of officials from other countries. Total number of trainees covered in 1989-90 was 640 as compared to 612 in 1988-89.

29 States and Union Territories

ANDHRA PRADESH

Area: 2,75,068 sq km
Capital: Hyderabad
Population· 5,35,49,673
Principal languages: Telugu and Urdu

HISTORY AND GEOGRAPHY

The earliest mention of the Andhras is said to be in *Aitereya Brahmana* (2000 BC). It indicates that the Andhras originally an Aryan race living in North India migrated to south of the Vindhyas and later mixed with non-Aryans. Regular history of *Andhra Desa,* according to historians, begins with 236 BC, the year of Ashoka's death During the following centuries, Satvahanas, Sakas, Ikshvakus, Eastern Chalukyas, Kakatiyas ruled Telugu country. Other dynasties ruled over the country in succession were the kingdoms of Vijayanagar and Qutub Shahy, followed by Mir Qumruddin and his successors, known as the Nizams. Slowly and gradually from the 17th century onwards, the British annexed territories of the Nizam and constituted a single province of Madras. After independence, Telugu-speaking areas were separated from the composite Madras State and a new Andhra State came into being on 1 October 1953. With the passing of the State Reorganisation Act, 1956, Telungana area was added to Andhra Pradesh.

Andhra Pradesh is bounded on north by Orissa and Madhya Pradesh, on west by Maharashtra and Karnataka, on south by Tamil Nadu and on east by the Bay of Bengal. Sea coast is about 974 km in length.

AGRICULTURE

Agriculture is the main occupation of about 70 per cent of people in Andhra Pradesh. Thirty five per cent of cultivated area is irrigated. The state is surplus in foodgrains particularly rice. Other important crops are *jowar, bajra,* maize, *ragi,* small millets, pulses, tobacco, cotton, sugarcane, groundnut and bananas. The state accounts for about 55 per cent of the country's entire production of castor and 94 per cent of Virginia tobacco. Forests cover 23.3 per cent of state's area. Important forest products are teak, eucalyptus, cashew, casuarina, bamboo, soft wood, etc.

NOTE:- Names, area and population are generally according to the CENSUS OF INDIA. 1981–Series I India-Part II B (i)–PRIMARY CENSUS ABSTRACT–General Population.

Total foodgrains production: 120 lakh tonnes, rice 105 lakh tonnes, pulses 6 87 lakh tonnes; oilseeds 22.03 lakh tonnes (up to end of March 1989).

INDUSTRY AND MINERALS

Several major industries are in operation around Hyderabad and Vishakhapatnam. These manufacture machine tools, synthetic drugs, pharmaceuticals, heavy electrical machinery, ships, fertilisers, electronic equipment, aeronautical parts, cement and cement products, chemicals, asbestos, glass and watches.

Andhra Pradesh has virtual monopoly of quality chrysolite asbestos in the country. It accounts for about 86 per cent of India's total production of barytes. Other important minerals found are copper ore, manganese, mica, coal and limestone. The state ranks sixth in manganese ore production and second in mica and limestone production. It stands second in deposits of minerals of strategic importance and sixth with regard to their value produced. Singareni coal mines supply coal to entire south.

There were 678 large and medium scale industries with total investment of Rs 3,446 crore providing employment to 3.86 lakh persons by March 1989, besides 73,358 small scale industries with investment of Rs 968.17 crore employing 6.93 lakh persons.

IRRIGATION AND POWER

Important irrigation schemes implemented include Nagarjunasagar project, Prakasam barrage, Tungabhadra low level canal, Kurnool-Cuddapah canal, Kadam project, Romperu drainage project and Upper Pennar project. Other important projects under implementation include Sri Ramsagar project, Vamsadhara project, Polavaram multi-purpose project and Somasila project. Work on Telugu Ganga project intended to supply drinking water to Madras and irrigation to Rayalaseema and Nellore districts was launched in 1983. An additional irrigation potential of 17.50 lakh hectare was created by March 1989.

Important power projects are the Machkund, Upper Sileru, Lower Sileru, Tungabhadra Dam, Nagarjunasagar and Nizam Sagar hydel power schemes and Nellore, Ramagundam, Kothagudam, Vijayawada and Hussain Sagar (Hyderabad) thermal stations. Third stage of Vijayawada thermal power station went on stream in October 1989. By March 1989 installed capacity was 3,615 mw. In addition 26,882 villages had been electrified and 10.43 lakh pumpsets energised. State's prestigious power project, Srisailam hydro-electric project is under construction.

TRANSPORT

Roads

National highways passing through Andhra Pradesh constitute 2,352 km and state highways 8,387 km. There are 25,532 km of major district roads and 85,156 km of other roads in the state.

Railways
Of the railway route of approximately 5,095 km in Andhra Pradesh, 3,381 km is broad gauge.

Aviation
Important airports connecting Bombay, Delhi, Calcutta, Bangalore and Madras are Hyderabad, Tirupati, Vijayawada and Vishakhapatnam Cuddapah, Hyderabad, Rajamundry, Ramagundam, Tirupati, Vijayawada, Vizag and Warangal are connected by Vayudoot service.

Ports
Major port is Vishakhapatnam. Minor ports are Kakinada, Machilipatnam, Bheemunipatnam, Narsapur, Krishnapatnam, Vadarevu and Kalingapatnam.

TOURIST CENTRES

Charminar, Salar Jung Museum, Golconda Fort in Hyderabad, Kakabiya Tarana Gate in Warangal, Sri Lakshmi Narasimha Swamy Temple, Kurnool, Buddha Stupas at Nagarjunkonda, Tirupati Temple, etc., are major tourist attractions in Andhra Pradesh.

Recently as part of Buddha Purnima Project 33 life size statues of eminent Telugu personalities were erected on Tank Bund of Hussain Sagar lake in Hyderabad. A 70-feet high monolithic Buddha statue is also to be erected shortly on Gibralter Rock in middle of the lake.

GOVERNMENT

Governor: Krishan Kanth
Chief Minister: Dr. M. Channa Reddy
Speaker: P. Ramachandra Reddy
Chief Secretary: G. R. Nair
Chief Justice: Justice Yogeshwar Dayal
Jurisdiction of High Court: Andhra Pradesh.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1 Adilabad	16,128	16,39,003	Adilabad
2 Anantapur	19,130	25,48,012	Anantapur
3. Chittoor	15,152	27,37,316	Chittoor
4. Cuddapah	15,359	19,33,304	Cuddapah
5. East Godavari	10,807	37,01,040	Kakinada

Distirct	Area (sq km)	Population	Headquarters
6 Guntur	11,391	34,34,724	Guntur
7. Hyderabad	217	22,60,702	Hyderabad
8. Karimnagar	11,823	24,36,323	Karimnagar
9. Khammam	16,029	17,51,574	Khammam
10. Krishna	8,727	30,48,463	Machilipatnam
11 Kurnool	17,658	24,07,299	Kurnool
12. Mahbubnagar	18,432	24,44,619	Mahbubnagar
13. Medak	9,699	18,07,139	Sangareddi
14 Nalgonda	14,240	22,79,685	Nalgonda
15. Nellore	13 076	20,14,879	Nellore
16. Prakasam	17,626	23,29,571	Ongole
17. Nizamabad	7,956	16,79,683	Nizamabad
18 Rangareddi	7,493	15,82,062	Hyderabad
19. Srikakulam	5,837	19,59,352	Srikakulam
20. Vishakhapatnam	11,161	25,76,474	Vishakhapatnam
21 Vizianagaram	6,539	18,04,196	Vizianagaram
22. Warangal	12,846	23,00,295	Warangal
23. West Godavari	7,742	28,73,958	Eluru

ARUNACHAL PRADESH

Area: 83,743 sq km[1]
Capital: Itanagar

Population: 6,31,839
Principal languages: Monpa, Miji, Aka, Sherdukpen, Bangni/Nishi, Apatani, Tạgin, Hill Miri Adi-Gallong, Digaru Mishmi, Idu Mishmi, Khampti, Nocte, Tangsa and Wancho

HISTORY AND GEOGRAPHY

History of Arunachal Pradesh goes back to hundreds of years into mists of tradition and myth. Local tradition regards the country around Sadiya as the ancient Vidarbha. Ancient *Puranas* have many references to the region. Recorded history of Arunachal Pradesh can be traced only when Ahom kings began to rule Assam in 16th century. The British took possession of Assam in 1838. British government had brought Arunachal Pradesh also under their administrative control. After independence, it was a part of North East Frontier Agency and later made a union territory. On 20 February 1987 Arunachal Pradesh was made a full-fledged state.

Arunachal Pradesh is skirted by Bhutan in west, Tibet and China in north and north-east, Burma to east and Assam in south. It consists of the submontane and mountainous ranges sloping to the plains of Assam. It is the largest state areawise in north-east region.

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[1] Area figure is provisional.

AGRICULTURE

Mountainous terrain of Arunachal Pradesh is peopled by a variety of tribes. Barring only 12 towns, entire area is rural where an overwhelming 94 per cent of its population lives scattered in 3,257 villages grouped under 48 integrated rural development blocks. Agriculture is the mainstay of people, who by and large follow a slash and burn method of shifting cultivation called *jhum* practised on rain-fed slopes of forested hills and dales. Cultivators constitute 35.33 per cent of total population and they represent 72.29 per cent of the total number of workers engaged in different economic activities.

About four per cent of the total geographical area was brought under agriculture till August 1987, while forests covered about 62 per cent of the area. Gross cropped area was 1,96,131 hectare, of which 52.52 per cent was under jhum and the rest under permanent cultivation--wet-rice and terraced rain-fed cropping. Rice is the principal crop and other important crops are maize, millet, wheat, pulses, potato, sugarcane and oilseeds.

Ecological conditions in Arunachal Pradesh are congenial for growth of horticulture. Besides pineapple, orange, lemon, *lichi*, papaya, banana, guava, temperate fruits such as apple, plum, pear, peach, cherries, walnut, almond, etc., are grown in about 1,390 horticulture gardens.

Gramsevak Training Centre and Farmers' Training Centre at Pasighat impart training in scientific methods of rural development and agriculture respectively.

MINERALS AND INDUSTRIES

Endowed with abundant forest, mineral and hydel power resources, Arunachal Pradesh has a high industrial potential. Coal reserve of the state comprising Namchik-Namphuk coal mine in Tirap district is estimated at about 900 lakh tonnes. This coal mine has been leased out to Coal India Ltd. for commercial exploitation. Estimated crude oil reserve is 15 lakh tonnes. Vast deposits of dolomite exist at Rupa in West Kameng district. Limestone deposit at Tidding in Lohit district indicates a reserve of 910 lakh tonnes. Limestone also occurs at Hunli in Dibang Valley district and Menga in Upper Subansiri district. These apart, occurrences of graphite, quartzite, kyanite, mica, iron and copper ores are also reported.

Remarkable progress has been achieved in cottage industries, of which weaving, basketry and carpet-making merit particular mention. Small scale industries numbering 1,754 in 1987-88, comprise saw, rice and oil mills, fruit preservation, soap and candle manufacturing units, steel fabrication, wood works and so on. Medium industries, 14 in number, are all forest-based, producing veneers, tea-chests and plyboards. Besides these, there are 25 sericulture centres.

Important industries are light roofing-sheet factory at Pasighat, fruit processing plant at Nigmoi in West Siang district, the cement plant at Tezu, lemon grass oil expeller unit at Tawang and citronella distillation plant at

Pasighat. An electronic unit has been set up at Itanagar for assembling television sets, quartz clocks, mini microphones, radio, etc

Technical education and training in middle-level engineering is imparted in industrial training institute at Roing. There are 64 craft and weaving centres providing training facilities and producing utility articles which are marketed through a number of emporia. Industrial estates have been established at Itanagar, Naharlagun, Pasighat and Deomali. Arunachal Pradesh Industrial Development and Financial Corporation Ltd., Itanagar provides subsidised industrial loans to small scale and medium industries

Newly established North-Eastern Regional Institute of Science and Technology in Itanagar is first of its kind in this part of the country.

IRRIGATION AND POWER

Jhum fields on the slant of hills under shifting cultivation are rain-fed. Patches of land under terrace and wet-rice cultivation, particularly in riverine tracts and along foothills belt, are irrigated usually by small gravity channels and diversion weirs. Pumping sets are also used for irrigation of small holdings. Under minor irrigation projects, 50,455 hectare of land was brought under irrigation potential.

Number of micro and small hydel stations commissioned till March 1986 was 22 with a total installed capacity of about 12,370 kw. Diesel sets are also used to meet power requirements and their total installed capacity during 1985-86 was about 5,705.50 kw. In 1986, 27,760 kw of electricity was generated by micro–hydel projects and 3,079 kw by diesel sets. Electricity was extended to 1,108 villages.

TRANSPORT

Arunachal Pradesh has 330 km of national highway. Along, Daporijo, Pasight, Tezu and Ziro are air linked by Vayudoot service.

FESTIVALS

Major festivals are: *Losar, Khan, Nyokum, Grankum Garkuyo, Boori-Boot, Dree, Si-Donyi, Mopin, Solung, Aran, Tamladu, Sangken, Reh, Oriah, Loku, Ojiele* and *Mol.*

TOURIST CENTRES

Places of tourist interest are: Bomdila, Tawang and nearby largest Buddhist monastery in India, Itanagar with excavated ruins of historical Ita Fort and attractive Ganga Lake, Malinithan and Bhismakna other two important archaeological sites, Parasuram Kund, a place of pilgrimage and Namdapha wild life sanctuary in Tirap district.

GOVERNMENT

Governor: D.D. Thakur
Chief Minister: Gegong Apang
Speaker: Roniya
Chief Secretary: Matin Dai
Jurisdiction of High Court: Falls under jurisdiction of Guwahati High Court.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area[1] (sq km)	Population	Headquarters
1 Changlang[2]	NA	NA	Changlang
2 Dibang Valley	13,029	30,978	Anini
3 East Kameng	4,131	42,736	Seppa
4 East Siang	6,512	70,451	Pasighat
5 Lohit	11,402	69,498	Tezu
6. Lower Subansiri	13,010	1,12,650	Ziro
7 Tawang	2,044	21,735	Tawang
8 Tirap	7,024	1,28,650	Khonsa
9 Upper Subansiri	7,032	39,410	Daporijo
10 West Kameng	7,550	41,567	Bomdila
11. West Siang	12,006	74,164	Along

1 Area figures are provisional
2. New district of Changlang has been created according to the Arunachal Pradesh (Reorganisation of Districts) Amendment Bill, 1987

ASSAM

Area: 78,523 sq km	*Population:* 1,98,96,843
Capital: Dispur (Temporary)	(Projected figures of Census 1981)
	Principal language: Assamese

HISTORY AND GEOGRAPHY

The word *Assam* is derived from Sanskrit word *asom* meaning peerless, judged by her exquisite natural beauty, cultural richness and human wealth. Assam has a rich legacy of culture and civilisation behind her. Being the homeland of different races of men: Austric, Mongolian, Dravidian and Aryan that came to dwell in her hills and valleys at different times since remote antiquity, she has developed a composite culture of variegated colours.

Assam during the epic period was known as *Pragjyotisha* and later as *Kamrupa*. Narak's son Bhagadutta took part in *Kurukshetra* war. The earliest epigraphic reference to the kingdom of Kamrupa is found in Allahabad pillar inscription of Samudragupta. Here along with Samataka, Devaka and Nepala, Kamrupa is mentioned as a *Pratyanta* or frontier state outside the Gupta empire, but with friendly and subordinate relation to it. Hiuen Tsang, Chinese scholar-pilgrim who visited Kamrupa in about 743 AD on an invitation of its monarch Kumar Bhaskar Varman, left a record of the kingdom he called *Kamolupa*. Kamrupa also figured in the writings of Arab historian Alberuni in 11th century. Thus since the epic period down to the 12th century AD the eastern frontier kingdom was known throughout *Arya Varta* both as Pragjyotisha and Kamrupa and kings called themselves 'Lords of Pragjyotisha'.

Advent of the *Ahoms* across eastern hills in 1228 AD was the turning point in Assam history. They ruled Assam up to 1826. Burmese entered through eastern borders and overran the territory at a time when court intrigues and dissensions were sapping the vitality of the Ahom royalty. The British, appeard on the scene and by the Treaty of Yandabo in 1826, Burmese ceded Assam to the British.

Assam which is situated in north-east corner of India is surrounded by Bhutan, Tibet and Arunachal Pradesh on north, Nagaland and Manipur on east, Meghalaya and Mizoram on south and Bangladesh, Tripura and West Bengal on west. Geographical area covered by Assam is 78,523 sq km comprising 23 districts with a population of 199 lakh in 1981 (projected) and 239 lakh in 1989 (projected), decadal growth rate being 36 per cent. Only a narrow strip of submontane region of the Himalayas connects Assam with the Indian mainland Flat alluvial valley is drained by the mighty Brahmaputra. The great river originates in western Tibet which brings down 6,500 lakh cubic feet of very fertile silt annually which is deposited in the valley between the Himalaya massif and the Meghalaya plateau and thence in the vast tract of Bengal delta. The state's climate is of humid tropical type in the plains and sub-alpine in the hills.

AGRICULTURE

Agriculture covers more than two-third of labour force and supports more than 77 per cent of population. Principal food crop is rice. Cash crops are jute, tea, cotton, oilseeds, sugarcane, potato, etc. Major horticulture items are orange and other citrus fruits, banana, pineapple, arecanut, cocounut, guava, *lichi*, mango, jackfruit, etc., which are grown on a smaller scale. The state has a gross cropped area of about 35 lakh hectare, more than 79 per cent accounting for foodgrains crops. Paddy alone covers about 23 lakh hectare.

Area under forest, categorised as reserved forest covers 17,409 sq km or roughly 22.19 per cent of the total area of the state. Unclassed forests cover 10,064 sq km.

INDUSTRY

Of agriculture-based industries, tea occupies an important place. Ever since wild tea bushes were first located in Upper Assam during early 19th century, a good share of the economy of the state has increasingly been contributed by tea industry. Assam leads the country's tea producing states, both in terms of quantity and labour force. Tea gardens in the state occupy an area of around two lakh hectare. Assam contributes about 15.6 per cent of world's entire tea production and Guwahati Tea Auction Centre has now become the biggest tea auction centre in the world for CTC tea. According to latest available figures, Assam had the highest tea output in the country in 1987, producing 54.7 per cent of entire tea output in India. In terms of quantity, Assam produced 3,686 lakh kg of the country's total tea production of 6,733 lakh kg.

Exploration, exploitation and refining of petroleum form bulk of the rest of industries in the state. Cottage industries include handloom, sericulture, cane and bamboo articles, carpentry, brass and metal crafts. An export-oriented handloom project has been established at Sualkuchi to exploit the potentiality of *Eri* and *Muga* silk textiles

IRRIGATION AND POWER

Strategy so far adopted for irrigation development in the state was to mainly provide supplemental irrigation for *kharif* crops and also pre-kharif and *rabi*. The state has of late been ravaged by successive floods almost every year, causing extensive damage to the kharif which is the main crop, resulting in low annual agricultural growth rate.

To obviate this situation state government has planned to give main thrust for increasing the yield as well as the acreage of pre-kharif and rabi crops that can be cultivated and harvested during the flood-free period from October to May with adequate irrigation support. Steps are being taken for inproving utilisation of irrigation.

Assam generates only one per cent of the total power output in the country. Thermal plants at Bongaigaon, Chandrapur and Namrup have a total installed capacity of 482.4 mw.

TRANSPORT

Roads

National highways—2,035 km, and state highways—1,898 km of which 280 km is unmetalled. Assam State Transport Corporation (ASTC) which is an undertaking of the state government, operates nearly 600 different services covering a total length of over 8,000 km. Private transport operators handle both passenger and goods traffic inside the state and at inter-state levels as well.

Railways

Railway link connecting Assam with the rest of India was established in 1950. At present, there is a total of 2,337 km of railway track in Assam, comprising both metre gauge and broad gauge lines. Broad gauge lines which were extended to Guwahati in 1984 comprise 262 km. There are eight long distance passenger trains connecting Guwahati with rest of the country.

Aviation

There arre six civil airports in the state operating regular air services. These are Borjhar (Guwahati), Salonibari (Tezpur), Mohanbari (Dibrugarh), Lilabari (Lakhimpur), Kumbhigram (Silchar) and Rowriah (Jorhat).

Inland Water Transport

The Brahmaputra river flowing for over 700 km through the state, provides a navigable waterway for almost its entire length. State Directorate of Inland Water Transport (IWT) and Central Inland Water Transport Corporation (CIWTC) are two public sector organisations providing passenger and goods services in the waterways of the state. IWT operates ferry services within Assam and CIWTC runs cargo services between Calcutta and Guwahati (Pandu) and Calcutta and Karimganj. Ferry services are provided at 38 *ghats* on Brahmaputra and Barak rivers. A commercial service is operational between Guwahati and Dibrugarh since June 1986.

FESTIVALS

Assam has an exclusive range of colourful festivals. *Bihu* is the chief festival celebrated on three occasions. *Rangali Bihu* or *Bohag Bihu* marks the advent of the cropping season and ushers in the new year, *Bhogali Bihu* or the harvest festival and *Kangali* or *Bihu* of lean period. Bihus are popular agricultural festivals.

Vaishnavites observe birth and death anniversaries of prominent Vaishnava saints through day-long singing of hymns and staging of *bhaonas* (theatrical performances in traditional style). *Ambubachi* in *Sakta* shrines and *Sivaratri* in Siva temples are observed by most people. Sivaratri *mela* at Umananda and other places in Siva temples, *Asokastami* mela, *Rash* mela, Parasuram mela, Ambubachi mela, *Durga puja* are the other religious festivals.

Population of Assam is a mosaic of different tribes like *Bodo Kacharis, Rabhas, Karbi, Mishing, Deuri, Chutias, Dimasas, Hmars, Lalungs,* etc. They have their own festivals. Some of them are: *Bathow, Kheraipuja, Rajni Gobra, Harni Gobra, Ali-ai-Ligang, Po-rag, Bahagiya Visu, Baisakhu,* etc.

TOURIST CENTRES

Important places of tourist interest in and around Guwahati are Kamakhya temple, Umananda (Peacock Island), Navagraha (temple of nine planets), Basistha Ashram, Gandhi Mandap, State zoo, State museum, Sukresuwar temple, Geeta Mandir, Madan Kamdev temple and Saraighat Bridge. In rest of the state—Kaziranga National Park (famous for one-horned rhino), Manas (tiger project), Sibsagar (Shiva temple), Tezpur (scenic beauty), Bhalukpung (angling), Haflong (health resort with nearby Jatinga Hills famous for bird mystery), Majuli (largest river island in the world), Chandubi Lake (picnic spot), Hajo (meeting place of Buddhism, Hinduism and Islam), Batadrava (birth place of great Vaishnav saint Sankardev) and Sualkuchi (famous for silk industry) are worth visiting.

GOVERNMENT

Governor: D. D. Thakur
Chief Minister: Prafulla Kumar Mahanta
Speaker: P. Barua
Chief Secretary: Haren Nath Das
Acting Chief Justice: Justice S. Haque
Jurisdirction of High Court: All north-eastern states.

AREA AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Headquarters
1 Barpeta	3,307 3	Barpeta
2 Cachar	5,102.2	Silchar
3 Darrang	3,465 3	Mangaldoi
4 Dibrugarh	7,023 9	Dibrugarh
5. Dhubri	2,745 5	Dhubri
6 Goalpara	2,843.8	Goalpara
7. Jorhat	6,400 0	Jorhat
8. Kamrup	6,601 4	Guwahati
9 Karbi Anglong	10,332 0	Diphu
10 Karimganj	1,839.0	Karimganj
11 Kokrajhar	4,716 5	Kokrajhar
12 Lakhimpur	5,646 4	Lakhimpur
13 Nagaon	5,561 0	Nagaon
14 North Cachar	4,890 0	Haflong
15 Nalbari	2,022 8	Nalbari
16 Pragjotishpur[2]	47 3	Pragjotishpur
16 Sibasagar	2,602 9	Sibsagar
17 Sonitpur	5,225 2	Tezpur
18 Golaghat[1]	—	Golaghat
19. Dhemaji[1]	—	Dhemaji
20 Tinsukia[1]	—	Tinsukia
21 Marigaon[1]	—	Marigaon
22. Hailakandi[1]	—	Hailakandi
23 Bongaigaon[1]	—	Bongaigaon

1. Area and population figures are not available
2. This has been merged with Kamrup

BIHAR

Area: 1,73,877 sq km
Capital: Patna

Population: 6,99,14,734
Principal language: Hindi

HISTORY AND GEOGRAPHY

Bihar finds mention in the *Vedas, Puranas,* epics, etc. Bihar was the main scene of activities of Buddha and twenty four Jain *Tirthankaras.* Great rulers of the state before the Christian era were Bimbisar; Udayin, who founded the city of Pataliputra; Chandragupta Maurya and Emperor Ashoka of the Maurya dynasty; the Sungas and the Kanvas. Then came the Kushan rulers followed by Chandragupta Vikramaditya of the Gupta dynasty. During the medieval period Muslim rulers made their inroads into the territory. The first to conquer Bihar was Mohammad-bin-Bhakhtiyar Khalji. The Khaljis were followed by the Tughluqs, and then the Mughals. Taking advantage of the disintegration of the Mughal empire, the British established their foothold in Bihar with the battle of Plassey in 1757. Through successive battles and annexations, the British consolidated their position. Till 1911 Bihar formed part of the Bengal Presidency, when on 12 December 1911 a separate province of Bihar and Orissa was created. In 1936 Bihar was made a separate province.

Bihar is one of the major states of the Indian Union. It is bounded on north by Nepal, on east by West Bengal, on west by Uttar Pradesh and Madhya Pradesh and on south by Orissa. Bihar has a number of rivers; the most important is Ganga. Others are Sone, Poonpoon, Falgu, Karmanasa, Durgawali, Damodar, Subarnarekha, Baraker, Koel, etc.

AGRICULTURE

Bihar has total geographical area of about 173 lakh hectare out of which only 77 lakh hectare is the net cultivated area and gross cultivated area is about 105 lakh hectare. About 28 lakh hectare net area and 38 lakh hectare gross area receive irrigation from different sources. Gross area covered under foodgrains is about 94 lakh hectare and the remaining 11 lakh hectare gross area is covered by other crops. Cropping intensity is about 136 per cent.

Principal foodgrain crops are paddy, wheat, maize and pulses. Main cash crops are sugarcane, potato, tobacco, oilseeds, onion, chillies, jute and mesta. Forests cover about 29 lakh hectare which is almost 17 per cent of the geographical area.

INDUSTRY AND MINERALS

In core sector Bihar has steel plants at Bokaro and Jamshedpur, sponge iron project at Chandil, copper complex at Ghatsila, coal mining industries, oil refinery, heavy engineering and forging plant at Ranchi, fertilisers at Sindri, oil refinery at Barauni and alloy steels at Adityapur. Besides, the state has leading units manufacturing steel ropes, jelly–filled communication cables, high tension insulators, watch factory, ceramic capacitors, etc., at Ranchi, TV receivers, fruit processing, bulk drugs and formulation, etc., at Hazipur and micronised mica papers at Koderma.

New projects with investment of nearly Rs 6,000 crore include caprolactum, slag cement, carbon black, polyster filament yarn, bagasse-based paper project, expansion and modernisation of TISCO taper roller bearing, mini steel plant, seamless steel tubes, *vanaspati, ghee*, expansion and modernisation of sugar mills, new sugar factory, colour coated aluminium sheets and coils, acetic acid, ferrites, industrial alcohol, transformer oil, baker's yeast, granite cutting and polishing, lactic acid, spinning cooperative mills, etc.

Bihar is renowned for its rich mineral resoures *viz.*, coal, mica, copper ore, uranium, limestone, China day, fire day, bauxite, kyanite, etc. This state has been the pioneer producer of important industrial minerals such as coal, mica, bauxite, iron ore, copper ore, uranium ore and iron pyrite (sulphur). It still is the sole producer of coking coal, pyrites and uranium. Bihar continues to be leading mineral producing state if petroleum from Bombav High and elsewhere is excluded. Bihar continues to be leading producer of bauxite 30 per cent, coal 40 per cent, copper ore 38 per cent and mica 57 per cent. The state occupies the second position for production of fire clay (25 per cent), graphite (34 per cent) and kyanite (48 per cent).

IRRIGATION AND POWER

Bihar has an ultimate irrigation potential of 124 lakh hectare of which 65 lakh hectare could be realised through major and medium irrigation projects and 59 lakh hectare through minor irrigation schemes. However, up to 1988-89 this potential had been created only up to the extent of 28.61 lakh hectare through major and medium schemes of which utilisation has been 24.85 lakh hectare. During Seventh Plan it was estimated to create additional irrigation potential in 3.17 lakh hectare and utilisation in 3.90 lakh hectare. Bv the end of Seventh Plan irrigation potential in an area of 28.45 lakh hectare would be created of which utilisation would be 25.65 lakh hectare.

Major power projects are Patratu thermal power station, Barauni thermal power station, Muzaffarpur thermal power station, Subarnarekha hydel power station and Kosi hydel power station under Bihar State Electricity Board and Bokaro, Chandrapura and Durgapur thermal pwer stations along with Tilaiya, Maithon and Panchet hydel power stations under Damodar Valley Corporation. The five genarating stations with installed capacity of 1,530 me under the Board, generated 4,539 me in 1988-89. Of 67,566 villages, 43,214 were electrified besides 2,41,247 pumpsets energised by March 1989.

TRANSPORT

Roads

In March 1989 Bihar had 35,411 km of metalled roads out of which national highway constitutes 2,118 km, and 50,259 km of unmetalled roads.

To strengthen road communication system a number of major bridges are being constructed on important routes. A notable achievement is the opening of Hajipur-Gandak bridge to traffic. Dumarighat bridge over river Kosi is targetted for completion shortly. Work on a bridge over river Ganga at Bhagalpur is being taken up with World Bank assistance.

Railways

Rail network is well entrenched in Bihar. The main rail junctions are Bihar Sharif, Dhanbad, Gaya, Muzaffarpur, Patna, Ranchi and Sasaram.

Aviation

Airports at Jamshedpur, Patna and Ranchi have regular services to Calcutta and Delhi through Indian Airlines and Vayudoot.

TOURIST CENTRES

Important places of tourist interest are: Rajgir (pilgrim centre); Bodh Gaya (most sacred pilgrim place for Buddhists); Gaya (centre of pilgrimage for Hindus); Nalanda (ruins of the world's earliest Buddhist university); Vaishali (the seat of the first Republic of the world in sixth century BC); Pawapuri (where Lord Mahavir breathed his last); Ranchi (waterfalls and scenic beauty); Jamshedpur (steel city); Hazaribagh (wildlife reserve famous for its National Park); Betla (Palamau National Park); Bhimbandh (hot water springs); Maner (sacred Muslim shrines of Sufi saint Hazrat Makhdoom Shah); Vikramshila (ruins of another Buddhist university); Topchanchi (scenic value); Deoghar (Hindu shrines); Patna (ancient city of Pataliputra) and Sasaram (tomb of Shershah Suri).

GOVERNMENT

Governor: Mohd. Yunus Salim
Chief Minister: Laloo Prasad
Speaker: Gulam Sarvar
Chief Secretary: A.U. Sharma
Chief Justice: G.G. Sohni
Jurisdiction of High Court: Bihar.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Araria	2,789	12,72,151	Araria
2. Aurangabad	3,305	12,37,072	Aurangabad
3. Begusarai	1,918	14,56,343	Begusarai
4. Bhagalpur	5,589	26,21,427	Bhagalpur
5. Bhojpur	4,098	24,07,600	Arrah
6. Darbhanga	2,279	20,08,193	Darbhanga
7. Deoghar	2,478.6	7,08,828	Deoghar
8. Dhanbad	2,966	21,15,010	Dhanbad
9. East Singhbhum	3,533	13,78,949	Jamshedpur

Distirct	Area (sq km)	Population	Headquarters
10 Gaya	6,545	31,34,175	Gaya
11 Giridih	6,892	17,31,462	Giridih
12. Godda	1,110 4	7.13,405	Godda
13. Gopalganj	2,033	13,62,123	Gopalganj
14 Gumla	9,077 1	10,17,231	Gumla
15. Hazaribag	11,165	21,98,310	Hazaribag
16. Jahanabad	1,569 30	6,83,667	Jahanabad
17. Katihar	3,057	7,40,837	Katihar
18 Khagaria	1,485 8	7,68,653	Khagaria
19 Kishanganj	1,938	6,91,337	Kishanganj
20. Lohardagga	1,490.9	2,29,786	Lohardagga
21 Madhepura	1,788.5	9,64,033	Madhepura
22 Madhubani	3,501	23,25,844	Madhubani
23 Munger	6,398 7	25,46,774	Munger
24 Muzaffarpur	3,172	23,57,388	Muzaffarpur
25 Nalanda	2,367	16 41,325	Bihar Sharif
26 Nawada	2,494	10,99,177	Nawada
27 Palamau	12,749	1,57,528	Daltonganj
28 Paschim Champaran	5,228	19,72,610	Bettiah
29. Patna	3,202	30,19,201	Patna
30 Purba Champaran	3,968	24,25,501	Motihari
31 Purnia	7,943	35,95,707	Purnia
32 Ranchi	7,574 1	18,23,415	Ranchi
33 Rohtas	7,213	23,66,325	Sasaram
34 Saharsa	4,071 8	19,89,770	Saharsa
35 Santhal Pargana	5,518 3	12,15,542	Dumka
36 Sahebganj	3,405.4	10,79,753	Sahebganj
37 Samastipur	2,904	21,16,876	Samastipur
38 Saran	2,641	20,84,322	Chapra
39. West Singhbhum	9,907	14,82,850	Chaibasa
40. Sitamarhi	2,643	19,32,147	Sitamarhi
41 Siwan	2,219	17,78,930	Siwan
42. Vaishali	2,036	16,62,527	Hajipur

GOA

Area: 3,702 sq km	*Population*: 10,07,749
Capital: Panaji	*Principal languages*: Konkani and Marathi

HISTORY AND GEOGRAPHY

Goa, known in the bygone days as Gomanchala, Gopakapattan, Gopakapuri, Goapuri, Gomantak, etc., abounds in a rich historical heritage. Early history of Goa is obscure. In the first century of Christian era, Goa was a part of the Satvahana empire followed by the Kadambas, the Rashtrakutas of Malkhed, the Chalukyas and the Silahars. The empire of the Yadavas by the end of the 14th century was displaced by the Khaljis of Delhi and thus the Muslim rule came to Goa. After the discovery of the sea route to India by

Vasco da Gama in 1498, many Portuguese expeditions came to India. In 1510, Afonso da Albuqerque with the help of the emperor of Vijayanagar attacked and captured Goa.

With the arrival of great Jesuit saint Francisco Xavier in 1542, began proselytisation in Goa. However, the Portuguese contined to rule over the territory except for an interlude during the later half of the 17th century when Shivaji conquered a few areas in and around Goa.

Even after the Indian independence, Goa continued to be in the hands of the Portuguese. However, they could not fulfil the aspirations of Goan people and ultimately on 16 December 1961 Goa was liberated and made a composite union territory with Daman and Diu. On 30 May 1987 Goa was conferred statehood and Daman and Diu made a separate union territory.

Goa is situated on western coast of Indian peninsula. On its north runs the Terekhol or Araundem river and on south lies North Canara district. On east lie the Western Ghats and the Arabian Sea in west. There are 36 islands in Goa of which Tiswadi group is well known.

AGRICULTURE

Rice is the main food crop. Pulses, *ragi* and other food crops are also grown. Main cash crops are coconut, cashewnut, arecannut, sugarcane and fruits like pineapple, mango and banana. Goa produces 1,77,979 tonnes of rice and 64,165 tonnes of sugarcane. The state has rich forest cover of more than 1,256 sq km.

IRRIGATION AND POWER

With the partly commissioning of dams like Selaulim and Anjunem and other irrigation projects area under irrigation is rising steadily. Work on Tillari dam has also been taken up. Total potential created by these irrigation projects till now is 23,083 hectare. Of the total 386 villages in Goa eigth are submerged due to construction of dams and one village is uninhabitated. Remaining 377 villages have been electrified leading to cent per cent coverage.

INDUSTRY AND MINERALS

The state has 4,231 small scale industrial units with total investment of Rs 60.89 crore and employment opportunities for 27,124 persons. In large and medium sector there are 41 units with total investment of Rs 220.70 crore employing 8,838 persons. There are 12 industrial estates besides a new electronic city coming up in the state. Mineral products are ferro-manganese, bauxite and iron ore contributing substantially to the economy of the state through exports.

TRANSPORT

Roads

Of the motorable roads, national highway constitutes 224 km.

Railways
A metre gauge line, Pune-Bangalore, links Goa with rest of the country.

Aviation
Bombay, Delhi, Trivandrum, Hyderabad and Bangalore are air-linked with Dabolim through regular Indian Airlines/Vayudoot service

Ports
Panaji and Marmugao are the two main ports in the state. Marmugao handles cargo vessels.

TOURIST CENTRES

Important tourist centres are: Colva, Calangute, Vagator; Harmal, Anjuna and Miramar beaches; Basilica of Bom Jesus and Se Cathedral churches at old Goa; Kavalem, Mardol, Mangueshi and Bandora pilgrimage centres, Aguada, Terekhol, Chapora and Cabo de Rama Forts; Dudhsagar and Harvalem waterfalls and Mayem lake resort. The state has rich wild life sanctuaries *viz.*, Bondla wild life sanctuary, Cotiago wild life sanctury, Molem wild life sanctuary and Dr. Salim Ali bird sanctuary covering an area of 354 sq km.

GOVERNMENT

Governor: Khursheed Alam Khan
Chief Minister: Dr. L. P. Barbosa
Acting Speaker: Prakash Velip
Chief Secretary: P.V. Jayakrishnan
Jurisdiction of High Court: Falls under Bombay High Court.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq kms)[1]	Population (1981 Census)	Headquarters
North Goa	1,713	5,68,021	Panaji
South Goa	1,948	4,39,728	Margao

[1] Districtwise figures do not tally with geographical area of Goa State which are supplied by the Surveyor General India since former represent "Land use" area derived from figures supplied by Directorate of Land Survey, Panaji.

GUJARAT

Area: 1,96.024 sq km
Capital: Gandhinagar
Population: 3,40,85,799
Principal language: Gujarati

HISTORY AND GEOGRAPHY

History of Gujarat goes back to 2,000 BC about the time of the Indus Valley civilisation. It is also believed that Lord Krishan left Mathura to settle on the west coast of Saurashtra which came to be known as Dwarka, the gateway. Later, it saw the various kingdoms; Mauryans, Guptas, Pratiharas and others. It was with the Chalukyas (Solankis) that Gujarat witnessed progress and prosperity. In spite of the plunderings of Mahmud of Ghazni, the Chalukyan kings were able to maintain general prosperity and well being. After this glorious respite Gujarat faced troubled times under the Muslim, the Maratha and the British rules.

Gujarat played an important role in freedom movement with Gandhiji at the helm of affairs. Before independence, present territories of Gujarat were divided mainly into two parts: the British and the princely territories. With reorganisation of the states, the Union of the States of Saurashtra and the Union Territory of Kachchh along with the former British Gujarat became a part of bigger bilingual State of Bombay. With bifurcation of the bilingual State of Bombay, present State of Gujarat came into being on 1 May 1960.

It is situated on west coast of India. The state is bounded by the Arabian Sea on west, Pakistan and Rajasthan in north and east, Madhya Pradesh in south-east and Maharashtra in south.

AGRICULTURE

Gujarat ranks first in the country in the production of tobacco, cotton and groundnut which have found good markets and provide a foundation for important industries like textiles, oil and soap. Other important cash crops are *isabgol,* cumin, sugarcane, mangoes and bananas. Chief food crops are paddy, wheat and *bajra; jowar* and maize are produced in local areas.

In 1988-89 production of cotton was 19 lakh bales and foodgrains 65.10 lakh tonnes. Production of sugarcane and oilseeds was to the tune of 9.00 lakh tonnes and 31 lakh tonnes respectively.

Forest species available in Gujarat are teak, *khair, sadad, haldarvo* and *manval* bamboos. The state has four National Parks and 11 sanctuaries.

INDUSTRY

Gujarat is dominant in textiles industry but the change in industrial production base was signalled with establishment of a refinery near Vadodara. Gujarat is recognised as one of the leading industrialised states in the country. Textile-dominated industrial base has been completely diversified and today Gujarat produces 94.6 per cent of soda ash, 90 per cent of azodyes, 64.6 per cent of salt, 62.6 per cent of nitrogenous fertilisers, 56.2 per cent of Vat dyes, 56.6 per cent of phosphatic fertilisers, 46.3 per cent of viscose filament yarn, 27.8 per cent of cotton cloth, 25.6 per cent of sulphuric acid, 10.7 per cent of paper and paper board, 12.3 per cent of caustic soda, 10.5 per cent of LPG, 6.6 per cent of cement and 5.5 per cent of sugar in the contry. Gujarat tops the list with a figure of Rs 2,619 compared to all-India average of Rs 1,309 per capita investment in mining and manufacturing sector. India's largest petro-chemical complex of IPCL and Gujarat Refinery are located near Vododara, leading to considerable development of petro-chemical industries in this area. A little further north of Surat in the backward district of Bharuch a number of large projects are under consideration. Number of working factories by the end of 1987 was around 13,540.

IRRIGATION

At the end of June 1989 total irrigation potential created was 32.95 lakh hectare of which 11.95 lakh hectare is from major and medium schemes, 1.84 lakh hectare from minor schemes and 18.96 lakh hectare from Government and private tubewells. Up to the end of Seventh Plan total irrigation potential created would be 33.53 lakh hectare which is expected to reach 42.16 lakh hectare in Eighth Plan. It is under consideration to cover irrigation project area of the state by radio talecommunication system. With a view to having better use of available water resources and to increase utilisation of the potential created, Command Area Development activities like construction of *warabandi* have been taken up.

TRANSPORT

Roads

The state has approximately 62,142 km of roads including 7,282 km of unsurfaced roads. The first Express way of the nation is under construction between Ahmadabad and Vadodara.

Aviation

The main airport is Ahmadabad which is connected with Bombay, Jaipur and Delhi by five daily services. The state has eight other airports: Vadodara, Bhavnagar, Bhuj, Jamnagar, Kandla, Keshod, Porbandar and Rajkot. Ahmadabad, Bhavnagar, Kandla, Keshod, Porbandar and Surat are linked by Vayudoot service.

Ports

Gujarat has as many as 40 ports of which Kandla is the major one. Eleven are intermediate and 28 minor ports.

FESTIVALS

Tarnetar Fair in honour of Lord Shiva at Tarnetar village is held on the 4th, 5th and 6th of the bright half of the month of *Bhadrapada* (August/September). *Madhavrai Fair* : This fair celebrates the marriage by elopement of Lord Krishna and Rukmini, every year on the 9th day of the bright half of the month of *Chaitra* (March/April) the incident is re-enacted. The venue is Madhavpur near Porbandar. *Ambaji Fair:* Ambaji is a popular pilgrim place dedicated to *Amba*, mother goddess, in Banaskantha district in north Gujarat. Fairs are held on the 15th day of the bright half of the Hindu month Bhadrapada (August-September), *Ashvin*

(September-October), *Kartika* (November-December) and Chaitra (Marach/April). *Bhavnath Fair* is held on the 14th day of the dark half of the Hindu month *Magha* (January-February) at the foot of Mount Girnar, near Junagadh. *Somnath Fair* is held on *Kartika Purnima,* full moon (November/December). *Dangi Darbar:* Dangs is a forested area where *adivasi* community lives. The fair, attended by all tribal chiefs in their regal attire, starts a week before the spring festival of *Holi* (March). It commences with the lighting of a bonfire and when it ends the fire is extinguished. *Dwarka Fair: Janmashtami* or the birthday of Lord Krishna is celebrated with great enthusiasm in Dwarka and the biggest fair of the year is held here to mark the event. *Shamlaji Fair:* A three-week long fair held on Kartika Purnima, full moon (November/December) at Vishnu shrine of Shamlaji. Other festivals are *Makar Sankranti* (January) and *Navaratri* (September/October).

TOURIST CENTRES

Religious spots like Dwarka, Somnath, Palitana, Pavagadh, Ambaji, Bhadrashwar, Shamlaji, Taranga and Girnar; Porbandar, birthplace of Mahatma Gandhi; places of memorable monuments of architectural and archaeological surprises like Patan, Siddhpur Ghumli; temples of Polo, Dabhoi, Vadnagar Modhera, Lothal and Ahmadabad; beautiful beaches like Ahmedpur-Mandvi, Chorwad, Ubhrat and Tithal; hill station Saputara; lion sanctuary of Gir Forest and Anjar Wild Ass Sanctuary are major tourist attractions in the state.

GOVERNMENT

Governor: Mahipal Shastri
Chief Minister: Chiman Bhai Patel
Speaker: Shashikant Lakhani
Chief Secretary: H.K. Khan
Chief Justice: Justice P.R. Gokul Krishnan
Jurisdiction of High Court: Gujarat.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Ahmadabad	8,707	38,75,794	Ahmadabad
2. Amreli	6,760	10,79,097	Amreli
3. Banaskantha	12,703	16,67,914	Palanpur
4. Bharuch	9,038	12,96,451	Bharuch
5. Bhavnagar	11,155	18,79,340	Bhavnagar
6. Gandhinagar	649	2,89,088	Gandhinagar
7. Jamnagar	14,125	13,93,076	Jamnagar
8. Junagarh	10,607	21,00,709	Junagarh
9. Kuchchh	45,652	10,50,161	Bhuj
10. Kheda	7,194	30,15,027	Kheda

District	Area (sq km)	Population	Headquarters
11. Mehsana	9,027	25,48,787	Mehsana
12 Panchmahals	8,866	23,21,689	Godhra
13. Rajkot	11,203	20,93,094	Rajkot
14. Sabarkantha	7,390	15,02,284	Himatnagar
15. Surat	7,657	24,93,211	Surat
16. Surendranagar	10,489	10,34,185	Surendranagar
17. The Dangs	1,764	1,13,664	Ahwa
18. Vadodara	7,794	25,58,092	Vadodara
19. Valsad	5,244	17,74,136	Valsad

HARYANA

Area: 44,212 sq km	*Population*: 1,29,22,618
Capital: Chandigarh	*Principal language*: Hindi

HISTORY AND GEOGRAPHY

Haryana has a proud history going back to the Vedic age. The state was the home of the legendary *Bharata* dynasty, which has given the name *Bharat* to India. Haryana is immortalised in the great epic *Mahabharata*. Kurukshetra. the scene of the epic battle between the *Kauravas* and the *Pandavas* is situated in Haryana. The state continued to play a leading part in the history of India till the advent of the Muslims and the rise of Delhi as the imperial capital of India. Thereafter, Haryana functioned as an adjunct to Delhi and practically remained anonymous till the first war of India's independence in 1857. When the rebellion was crushed and the British administration was reestablished, the Nawabs of Jhajjar and Bahadurgarh, the Raja of Ballabgarh and Rao Tula Ram of Rewari of the Haryana region were deprived of their territories. Their territories were either merged with the British territories or handed over to the rulers of Patiala, Nabha and Jind. Haryana thus became a part of Punjab provinces.

The state is bounded by Uttar Pradesh in east, Punjab in west, Himachal Pradesh in north and Rajasthan in south. Union Territory of Delhi juts into Haryana.

Haryana can be divided into two natural areas, sub-Himalayan *terai* and Indo-Gangetic plain. The plain is fertile and slopes from north to south with a height above the sea level averaging between 700 and 900 ft. South-west of Haryana is dry, sandy and barren. Haryana has no perennial river. The only river which flows through Haryana is the Ghaggar which passes through northern fringes of the state. For most of the year, climate of Haryana is of a pronounced character-very hot in summer and markedly cold in winter.

AGRICULTURE

Haryana is primarily an agricultural state. About 80 per cent of its people depend on agriculture for their livelihood. Various measures have been taken to raise the standard of living of its farmers. Haryana is the first state which has written off cooperative loans of farmers. It also raised the price of sugarcane from Rs 24 to Rs 35 per quintal during 1988-89. The state has wintnessed a phenomenal increase in agricultural output. Foodgrains production had a quantum jump form 25.92 lakh tonnes in 1966 to 94.83 lakh tonnes in 1988-89. Today, Haryana is not only self-sufficient in foodgrains production but also among the top contributors of foodgrains to Central Pool which stands at 30-35 lakh tonnes.

Haryana Agricultural University at Hisar is one of the premier research institutions in the country. It has contributed significantly in various fields of research, namely, agriculture, horticulture, agro-economy and livestock.

INDUSTRY

The state has a very sound industrial base. Small scale units have increased more than nineteen-fold from 4,519 in 1966 to more than 86,100. Haryana produces the largest number of tractors in the country. One out of every four bicycles is manufactured here, besides around one-third of country's production of sanitarywares. Panipat has earned the reputation of being the 'weavers city' of India for its exquisite hand-tufted woollen carpets and colourful handloom products. There are 400 large and medium scale units in the state. Greater emphasis is being laid on dispersal of industries in rural areas. Under this scheme 34,488 units have been set up manufacturing a wide range of products, employing 87,892 persons.

IRRIGATION AND POWER

Haryana is a beneficiary of the multi-purpose project on Sutlej and Beas where it shares benefits with Punjab and Rajasthan. Major irrigation projects are Western Yamuna Canal, Bhakra Canal System and Gurgaon Canal. The water had to be raised from lower levels to higher and drier slopes in the state. It is a bold new endeavour that gave practical shape to the lift irrigation for the first time in India. The state has completed Jui and Sewani lift irrigation schemes. Jawaharlal Nehru irrigation scheme, the biggest of its kind and Loharu lift irrigation scheme shall be completed soon. For irrigation and to conserve moisture of dry land, 279 micro watersheds have been identified to store excessive run-off waters by constructing water storage structure.

Power generation and distribution systems have been augmented mainfold. Consumption of power which was 17 lakh units a day in 1966 is now around 250 lakh units a day. Installed capacity of power has risen from 343 mw to 2,177 mw. Similarly circuit length of transmission and distribution lines has now grown to 1,43,929 km from mere 18,664 km in 1967. Number of grid sub-stations including pole-mounting sub-stations in the state has risen from 5,437 to 60,477.

In rural electrification Haryana has an impressive record of being the first state to have elctrified all its villages. It has also achieved cent per cent electrification of *harijan bastis* much ahead of all other states in the country. Street light is also being provided in villages in a phased programme, more than 4,376 villages already provided with street lights.

RURAL WATER SUPPLY

Haryana has not been very fortunate in having easy access to water. Most of its villages had no source of clean and safe drinking water before. For more than 50 per cent of the total population of Haryana, clean drinking water was indeed a dream. Drinking water supply through taps has now been taken to villages. In the year of formation of Haryana only 170 problem villages out of a total of 5,686 had access to safe drinking water. At present more than 5,600 villages have this facility round the year.

TRANSPORT

Roads

Haryana has 21,273 km of motorable roads of which only 2,000 km are unmetalled. National highway runs to 655 km.

Railways

There is no major railway station in Haryana. Rail routes from Delhi to Agra, Ajmer, Ferozepur and Chandigarh cross through the state. Of the railway stations, Ambala and Kurukshetra are important.

Aviation

Delhi and Chandigarh airports on eastern and northern boundaries link the state with other major national and international stations. At the formation of Haryana there was only one flying club at Hisar with a *kuccha* runway which came to the share of the state. At present there are six civil aerodromes at Hisar, Karnal, Pinjore, Narnaul and Bhiwani with all-weather pucca runway.

TOURIST CENTRES

Badkhal Lake, Dabchick (Hodal), Jungle Babbler (Dharuhera) Karna Lake (Uchana), Kala Teetar (Abubshehr), Kingfisher (Ambala), Magpie (Fridabad), Raj Hans (Surajkund), Skylark (Panipat), Sohna, Sultanpur bird sanctuary (Sultanpur), Surajkund and Yadavindra Garden (Pinjore). Number of tourist complexes in the state is 37.

GOVERNMENT

Governor: Dhanik Lal Mandal
Chief Minister: Hukum Singh
Speaker: S.H. Chatha
Chief Secretary: Kulwant Singh
Chief Justice: Justice J.V. Gupta
Jurisdiction of High Court: Punjab and Haryana.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Ambala	3,832	14,09,463	Ambala
2. Bhiwani	5,099	1,20,052	Bhiwani
3. Faridabad	2,150	10,00,859	Faridabad
4. Gurgaon	2,716	8,49,598	Gurgaon
5. Hisar	6,315	14,96,534	Hisar
6. Jind	3,306	9,38,074	Jind
7. Karnal	3,721	13,22,826	Karnal
8. Kurukshetra	3,740	11,30,026	Kurukshetra
9. Mehendragarh	3,010	9,59,400	Narnaul
10. Rohtak	3,841	13,41,953	Rohtak
11. Sirsa	4,276	7,07,068	Sirsa
12. Sonipat	2,206	8,46,765	Sonipat

HIMACHAL PRADESH

Area: 55,673 sq km
Population 55,80,818
Capital: Shimla
Prinicpal languages: Hindi and Pahari

HISTORY AND GEOGRAPHY

The earliest known inhabitnats of the region were a tribe called *Dasas* . Later the Aryans came and they assimilated the tribes. In the later centuries the hill chieftains accepted the suzerainty of the Mauryan empire, the Kushans, the Guptas and the Kanauj rulers. During the Mughal period the *Rajas* of the hill states made some mutually agreed arrangements which governed their relations. In the 19th century Ranjit Singh annexed or subjugated many of the states. When the British came, they defeated Gorkhas and entered into treaties with some Rajas and annexed the kingdoms of others. This situation remained more or less unchanged till 1947.

Afer independence 30 odd states of the area were united and the now known Himachal Pradesh was formed. At the same time some areas were merged into Patiala and East Punjab State Union (PEPSU). With the reorganisation of Punjab on 1 November 1966, certain areas belonging to it were included in Himachal Pradesh. Subsequently Himachal Pradesh was made a full-fledged state.

The state is bordered by Jammu and Kashmir in north, Punjab in west and south-west, Haryana in south, Uttar Pradesh in south-east and by Tibet in east.

AGRICULTURE

Himachal Pradesh has a predominantly agro-pastoral economy. Over three-fourth of its working population is directly engaged in these sectors.

Holdings are marginal with over 80 per cent farmers falling in small and marginal category and the net irrigated area accounts for one-fifth of the net sown area. Diverse agro-climatic conditions afford excellent opportunities for horticulture and cash crops. Returns to farmer per unit of area have been maximised by significant shifts in cropping patterns. Whereas fruit output has crossed the four lakh-tonne mark, vegetable production has also reached 4.50 lakh tonnes. Large scale expansion of mushroom cultivation has been undertaken. On-farm activities are being supplemented by improvement in milch cattle through a crossbreeding programme, rabbitry, pisciculture and floriculture. Himachal Pradesh also provides remunerative prices to growers through a price support mechanism which covers a wide range of crops like apple, potato, orange, *kinnow*, *galgal*, ginger, *chilgoza*, etc. Apart from the largest fruit processing plant in this part of the world having already been located and commissioned, a corrugated fibre board carton factory is also being established for making fruit and vegetable packing more scientific and attractive besides reducing consumption of coniferous timber.

Forests occupy about 39 per cent of the area. The state is implementing a perspective plan to bring 50 per cent of the area under forest cover to preserve the fragile Himalayan eco-system as also to prevent floods in the plains besides preventing fast silting up of nationally important river valley projects.

INDUSTRY

Despite inherent locational disadvantages, distance from markets and the lag in the process of industrialisation, the state has made rapid strides in the recent decade. It is also following a conscious policy of industrial dispersal backed by a system of incentives. It now has 118 large and medium units, 18,900 small scale units and 34,000 small artisan-based units which provide employment to over 1.50 lakh persons. It has developed 16 industrial areas and five industrial estates.

Apart from a brewery at Solan in private sector, Himalaya Fertilisers Limited, a public sector undertaking has started commercial production of NPK-balanced granulated fertilisers. A television assembly plant at Solan Electronic Complex produces TV sets.

There are two big cement plants. One of the biggest fruit processing plants in Asia at Parwanoo is in operation. An electronics complex is being developed at Shoghi near Shimla. In small scale sector microscopes, watch parts, clinical and industrial thermometers, hospital and heating equipment, etc., are being manufactured. Among village industries are sheep rearing, wood carving, blacksmithy, spinning, weaving, leather tanning, pottery and bomboo craft.

Important minerals of the state are rock salt, slate, gypsum, limestone, baryte, dolomite and pyrite.

IRRIGATION AND POWER

The state has limiteed scope for major and medium irrigation projects. Two medium irrigation projects, namely, Giri Bata and Bhabour Sabib-I have been commissioned and two more at Balh and Bhabour Sahib-II are nearing completion. Shah Nehar project in Kangra district which will irrigate lands down-stream of Pong Dam, has also been initiated. Innumerable minor irrigation schemes now cover an area of over 1.50 lakh hectare in the state.

The state is endowed with immense hydel potential estimated at around 20,000 mw. Most of it is extremely inconveniently located and its rapid actualisation holds two important answers for future. It can make the state financially viable and also meet yawning deficit in energy availability in power-hungry northern region. The state with its limited resources has commissioned Bassi (60 mw), Giri (60 mw), Binwa (6 mw), Andhra (16.95 mw), Bhaba-Sanjary *Vidyut Pariyojna* (120 mw), Rong-Tong (2 mw) and a few other micro-installations. Work on the prestigious Nathpa-Jhakri (1,500 mw) and Kol dam (600 mw) projects has also begun.

The state achieved almost cent per cent rural electrification at the end of 1987-88.

TRANSPORT

Roads

Himachal Pradesh now has a road length of 16,768 km connecting nearly half of the villages in the extremely hilly terrain and difficult climatic conditions. It has three national highways.

Railways

The state also has two narrow/metre gauge railway lines running from Pathankot to Jogindernager (Kangra Valley Railway) and Kalka to Shimla. Broad gauge railway line from Nangal to Talwara under construction has now been commissioned up to Una.

Aviation

Himachal Pradesh has three airports at Bhuntar (Kullu Valley), Jubbarhatti (Shimla) and Gaggal (Kangra).

TOURIST CENTRES

Main tourist attractions are Kullu, Kangra and Ravi valleys and Shimla. Temples at Jawalajee, Chamunda Devi, Chintpurni, Renuka and Rewalsar, Deodth Sidth and Naina Devi are major attractions for pilgrims. HPTDC has multi-purpose facilities at Chail Wild Flower Hall, Chharabra, Parwanoo and Manali. It runs ski courses from January to March at Narkanda. Hang gliding competitions are held in Kangra valley. There is an anthropological museum in Hotel Castle at Naggar.

GOVERNMENT

Governor: B. Rachaiah

Chief Minister: Shanta Kumar
Speaker: Radha Raman Shastri
Chief Secretary: M. S. Mukherjee
Chief Justice: Justice P.C.V. Balakrishna Menon
Jurisdiction of High Court: Himachal Pradesh.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

Distirct	Area (sq km)	Population	Headquarters
1 Bilaspur	1,167	2,47,368	Bilaspur
2 Chamba	6,528	3,11,147	Chamba
3. Hamirpur	1,118	3,17,751	Hamirpur
4. Kangra	5.739	9,90,758	Bharamsala
5. Kinnaur	6,401	59,547	Kalpa
6 Kullu	5,503	2,38,734	Kullu
7 Lahul and Spiti	13,835	32,100	Keylong
8. Mandi	3,950	6,44,827	Mandi
9 Shimla	5,131	5,10,932	Shimla
10. Sirmour	2,825	3,06,952	Nahan
11. Solan	1,936	3,03,280	Solan
12 Una	1,540	3,17,422	Una

JAMMU AND KASHMIR

Area: 2,22,236[1] sq km
Capital: Srinagar (Summer)
Jammu (Winter)

Population: 59,87,389[2]
Principal languages: Urdu, Kashmiri, Dogri, Pahari, Balti, Ladkhi, Punjabi, Gujri and Dadri.

HISTORY AND GEOGRAPHY

Legend in *Rajtarangni* and *Nilmat Purana* has it that the valley of Kashmir was once a large lake. According to it, Kashyap *Rishi* drained off the water, making it a place of abode. Geologists have their own theory to prove that geological changes made way for the outflow of water by subsidence of the mountain at Khadinayar, Baramula. Thus emerged the valley of Kashmir, the paradise on earth.

Ashoka introduced Buddhism to Kashmir in the third century BC which was later strengthened by Kanishka. Control of the valley passed on to the Huns in the early sixth century. The valley regained freedom in 530 AD but soon came under the rule of the Ujjain empire. On the decline of the Vikramaditya dynasty, the valley had its own rulers. There was a synthesis of Hindu and Buddhist cultures. Lalitaditya (697-738 AD), who extended his rule up to Bengal in east, Konkan in south, Turkistan in north-west and Tibet in north-east, was the most famous of Hindu rulers. Lalitaditya was famous for constructing buildings.

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[1] Includes 78,114 sq km under illegal occupation of Pakistan, 5,180 sq km illegally handed over by Pakistan to China and 37,555 sq km under illegal occupation of China.

[2] The population figure excludes population of areas under unlawful occupation of Pakistan and China where census could not be taken.

Islam came to Kashmir during 13th and 14th century AD. Muslims now constitute majority in Kashmir. Zain-ul-Abedin (1420-70) was the most famous of the Muslim rulers, who came to Kashmir when the Hindu king Sinha Dev fled before the Tatar invasion. Later, Chaks overran Haider Shah, son of Zain-ul-Abedin; they continued to rule till 1586 when Akbar conquered Kashmir. In 1752 Kashmir passed on from the feeble control of Mughal emperor of the time to Ahmed Shah Abdali of Afghanistan. The valley was ruled by the Pathans for 67 years.

Jammu has also been mentioned in *Mahabharata* and two recent finds of Harappan remains and artifacts of Mauryan, Kushan and Gupta periods of Akhnoor have added new dimensions to its ancient character. The land of Jammu was divided into 22 hill principalities. Raja Maldev, one of the Dogra rulers conquered many territories to consolidate his kingdom. Raja Ranjit Dev ruled over Jammu from 1733 to 1782. His successors were weak and thus Maharaja Ranjit Singh annexed the territory to Punjab. He later handed over the Jammu Raj to Gulab Singh, a scion of the old Dogra ruling family, who had grown powerful among Ranjit Singh's governors and had annexed almost the whole Jammu region. The state was governed by Dogra rulers until 1948, with the paramountancy resting up to 1947 in the British Crown's representative in India.

Jammu and Kashmir state is situated between 32° 17' and 36° 58' north latitude and 73° 26' and 83° 30' east longitude. Its boundaries extend to Russian Turkistan in north, Tibet in east, Punjab in south and Pakistan in west. Geographically the state can be divided into four zones. First, the submontane and semi-montane plain commonly known as *kandi* belt; the second, hills including Siwalik ranges; the third, mountains of Kashmir Valley and Sir Punjal range; and the fourth, Tibetan tract of Ladakh, Kargil, Gilgit and Skardu.

AGRICULTURE

About 80 per cent of the population of the state depends on agriculture. Paddy, wheat and maize are the major crops. Barley, *bajra*, and *jowar* are cultivated in some parts. Gram is grown in Ladakh.

The state has a forest area of 21,000 sq km comprising over 15 per cent of the total geographical area; excluding vast barrenness of Ladakh, percentage of land under forests is over 51.

INDUSTRY

Handicrafts, being the traditional industry of the state, has been receiving top priority in view of its large employment potential and also demand of handicraft goods both within and outside the country. Handicraft production includes mainly papier-mache, wood carving, carpets, shawl making, embroidery, etc. This sector provides employment to more than two lakh persons. This industry particularly in carpets earns substantial foreign exchange. Production value of handicrafts has increased to more than Rs 154 crore. About 81,370 persons have been imparted training in various trades under various schemes.

Handloom Development Corporation is producing woollen items like export tweed, blazer, blankets, shawls, *dhussas, kani* shawl, etc.

In small scale sector number of units registered formally is of the order of 26,332 which have generated employment for about 1,15,243 persons. In this sector the government has offered a package of incentives to attract unemployed youth to set up their units in the state

IRRIGATION AND POWER

Irrigation and power sectors with an allocation of Rs 156.57 crore had claimed 34.8 per cent of the 1988-89 Annual Plan.

Salal and Stakna hydel projects were commissioned during 1987-88. About 74 villages were electrified during the year besides 437 hamlets and 6 *harijan bastis*, raising the total number of electrified villages to over 6,087 including 922 harijan bastis and 2,276 hamlets, out of a total of 6,718 villages. 5,100 villages had been provided tapped drinking water facilities till March 1988. Two grid stations were commissioned. Work on 16 mini and micro-hydel projects is also going apace. Three gas turbines have been set up in the valley to overcome power shortage especially during winter. Four additional turbines are expected to be commissioned soon.

A hydro-electric power corporation has been set up to mobilise resources for effective implementation of various power projects. Several other projects are being taken up in the Chenab basin, *viz.*, Dul Hasti, Savalkote and Bugliar. Total power generation in the state sector is 259 mw.

TRANSPORT

Roads

The state has about 10,260 kilometre of all categories of roads. Vehicular population in the state was about 1,04,864 by September 1989.

Railways

At present rail system extends only up to Jammu. Work on Jmmu-Udhampur railway line is in progress.

Aviation

Srinagar, Jammu and Leh are major airports connecting Jammu and Kashmir with other parts of the country.

FESTIVALS

Janmashtami, the birth day of Lord Krishna is celebrated on the 8th day of dark fortnight of *Bhadon* (August-September). *Dussehra* or *Vijay Dashmi* on the 10th of bright fortnight of *Assuj* is celebrated as the day of victory of Rama over Ravana. *Shivratri* festival is also celebrated in Jammu and Kashmir. Four Muslim festivals celebrated in the state are *Id-ul-Fitr, iduz Zuha, Id-i-Milad-ul-Nabi* and *Miraj Alam. Muharram* is also observed.

The *Hemis Gumpa* festival of Ladakh is internationally known which comes off in the month of June. A special feature of the Hemis festival is its mask dance. In Spituk monastery in Leh, enormous statues of goddess *Kali* are exhibited once in the year on the occasion of the annual festival which falls in January. Other festivals celebrated are *Lohri* marking the climax of winter; *Singh Sankranti* observed in Rambon and adjoining villages: *Mela Pat* observed in Bhaderwah and Kishtwar in the month of *Chaitra,* etc.

TOURIST CENTRES

Kashmir Valley is described as 'Paradise on Earth'. Chashma Sahi springs, Shalimaar Bagh, Dal Lake, etc., in Srinagar; Gulmarg, Pahalgaon, Sonamarg, etc., in the Valley, Vaishno Devi temple and Patnitop near Jammu, etc., are important tourist centres.

GOVERNMENT

Governor: Girish Chandra Saxena
Chief Secretary: R.K. Takkar
Chief Justice: Dr. A.S. Anand
Jurisdiction of High Court: Jammu, Kashmir and Ladakh.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1 Anantnag	3,984	6,56,351	Anantnag
2. Badgam	1,371	3,67,262	Badgam
3. Baramula	4,588	6,70,142	Baramula
4. Doda	11,691	9,43,395	Doda
5. Jammu	3,097	9,43,395	Jammu
6. Kargil	14,036	65,952	Kargil
7. Kathua	2,651	3,69,123	Kathua
8. Kupwara	2,379	3,28,743	Kupwara
9. Ladakh	82,665[1]	68,380	Leh
10. Pulwama	1,398	4,04,078	Pulwama
11. Punch	1,674	2,24,197	Punch
12. Rajauri	2,630	3,02,500	Rajauri
13. Srinagar	2,228	7,08,328	Srinagar
14. Udhampur	4,550	4,53,636	Udhampur

[1] Includes 37,555 sq km under illegal occupation of China.

KARNATAKA

Area: 1,91,791 sq km
Population: 3,71,35,714
Capital: Bangalore
Principal language: Kannada

HISTORY AND GEOGRAPHY

Karnataka has written history of nearly 2,000 years. Apart from its being subjected to the rule of the Nandas, Mauryas and the Satvahanas, Karnataka came to have indigenous dyasties like the Kadambas of Banavasi and the Gangas of Kolar from the middle of the 4th century AD. Gomateshwara monolith at Shravanabelagola was installed by a Ganga minister. The Chalukyas of Badami (500 AD-753 AD) ruled over wider area from the Narmada to the Kaveri from the days of Pulkeshin II (509-542 AD) who even defeated Harshavardhana of Kanauj. This dynasty created fine monuments at Badami, Aihole and Pattadakal, both structural and rock-cut. Aihole has been one of the 'cradles' of temple architecture. The Rashtrakutas (753-973 AD) of Malkhed who succeeded them levied *tribute* on the rulers of Kanauj successively in the so-called 'Age of Imperial Kanauj'. Kannada literature developed during this period. Outstanding Jain scholars of India lived in their court. The Chalukyas of Kalyana (973 to 1189 AD) and their later feudatories, the Hoysalas of Halebidu built fine temples, encouraged literature and fine arts. Noted jurist Vijnaneshwara (work: *Mitakshara*) lived at Kalyana. Great religious leader Basaveshwara was a minister at Kalyana. Vijayanagar Empire (1336-1646) fostered indigenous traditions and encouraged arts, religion and literature in Sanskrit, Kannada, Telugu and Tamil. Overseas trade flourished The Bahamani sultans (capital: Gulbarga, later Bidar) and the Bijapur Adilshahs raised fine Indo-Sersanic buildings and encouraged Urdu and Persian literature. Advent of the Europeans resulted in introduction of new crops (tobacco, maize, chillies, groundnut, potato etc.) After the fall of the Peshwa (1818) and Tipu (1799) Karnataka came under the British. Christian missionaries introduced English education and printing during 19th century. Revolution in transport, communication and industries was evidenced. Urban middle class emerged. Mysore dynasty helped industrilisation and cultural growth. Freedom movement was followed by the movement for unification of Karnataka. Belgaum Congress (1924)' was presided over by Mahatma Gandhi. After independence, the new united Mysore State was created in 1956 and was renamed Karnataka in 1973.

Karnataka lies to south of Goa and Maharashtra, to west of Andhra Pradesh, to north-west of Tamil Nadu and to north of Kerala. It has a sea coast of nearly 260 km (300 km with inundations). Almost parallel to the coast are the Sahyadri ranges of the Western Ghats, after a narrow coastal strip. The highest point in the state is the peak of the Mullaiyanagiri (6,317 feet) followed by Kudremukh (6,215 feet). These Ghats are the source of many east and west flowing rivers of Karnataka. They are covered by thick forests rich in fauna and flora including teak and sandalwood. To the east of these ranges is the Deccan Plateau. Major parts of the state lie in this Plateau, mostly being in rain shadow area and suffering from periodical droughts. Irrigation alone can sustain this region. The Ghats and the Tungabhadara Valley are rich in iron ore. Many waterfalls in the Ghat region are harnessed for power.

AGRICULTURE

Karnataka is predominantly rural and agrarian. About 76 per cent of its population lives in rural areas with 71 per cent of working force engaged in agriculture and other allied activities, generating about 37 per cent of the state's income of 1986-87. Of the total geographical area of 191 lakh hectare net sown area was about 106 lakh hectare forming 55.78 per cent. Forest area was about 30.6 lakh hectare (16.06 per cent of the total geographical area) during 1986-87. Total production of foodgrains was 75.26 lakh tonnes and total oilseeds production was about 13 lakh tonnes during 1986-87. Major food crops are rice, *ragi, jowar, bajra,* maize and pulses. Karnataka accounts for 47 per cent of the country's ragi production. Cumulative irrigation potential created up to 1986-87 was about 26.96 lakh hectare and the net area irrigated was 18.15 lakh hectare in 1986-87 forming about 17.08 per cent of net area sown. Among cash crops, coffee is the most important as it accounts for 59 per cent of the country's coffee production and stands first in the yield per hectare. Other crops are cardmom, arecanut, safflower, coconut, cotton, goundnut, chillies, castorseed, sugarcane and tobacco. The state stands second in the value of products per hectare and also second in total income from forests. Sandal wood, teak wood, rubber, bamboo, rose wood, etc., are the major forest produces. It is one of the leading states in horticultural crops. Area and production of fruit crops was 1.83 lakh hectare and 28.4 lakh tonnes (1986-87), respectively. Karnataka has over 4.57 lakh hectare of fresh water, 8,000 hectare of brackish water resources and a coastal line of 300 km. Total fish production during 1987-88 was 1.76 lakh tonnes of which marine fish production was 1.30 lakh tonnes.

INDUSTRY AND MINIRALS

Karnataka is one of the leading industrialised states in India. Public sector undertakings include Bharat Earth Movers, Bharat Electronics, Bharat Heavy Electricals, Hindustan Aeronautics Ltd., Hindustan Machine Tools, Indian Telephone Industries, Wheel and Axle Factory, New Government Electrical Factory and Mangalore Chemicals and Fertilisers. There is a number of factories under joint and private sectors and also small scale industries. Some of the manufactured items include aircraft, rail coaches, telephone instruments, electronic and telecommunication equipment, glass, batteries, spark plugs, lamps, wheel and axle, electric motors, textiles, silk, hosiery, sandal oil, electrical goods, porcelain, ceramics, sugar, paper, capacitors, mining-metal tools, cement, motorcycles, fertilisers, etc. The state-owned Visvesvarayya Iron and Steel Ltd., Bhadravathi produces special steel, alloy steel, with a rated capacity of 77,000 tonnes per year. Another important project of the state is Kudremukh Iron Ore Project at Kudremukh, Chikmagalur district. Karnataka stands first in production of electronic equipment. The state had in 1987-88, 1,243 registered factories employing 7.37 lakh persons. In fact Bangalore is known is the 'electronic city' of India. The state stands first in production of raw silk (mostly multi-voltine) accounting to about 53 per cent (1988) of country's production and is famous in world markets for its sandal soap and sandal wood oil.

The state is rich in mineral resources. Important minerals are high grade iron ore, copper, manganese, chromite, china clay, limestone and magnetite. The state has also the pride of producing gold.

IRRIGATION AND POWER

Karnataka has the Godavari, the Krishna, the Kaveri, the Palar and the Pennar basins with a drainage area of 1,91,170 sq km mostly of east-flowing rivers for irrigation. Some west-flowing rivers like the Kali and the Shravathi are used for generating electricity. It is the first state in the country to have generated electricity at Gokak Falls in 1887. Important power projects are Shivasamudra Hydro-Electric Project (1901), Shravathi Hydro-Electric Project and the power project of the Kali river. The state has a thermal power station at Raichur with an installed capacity of 420 mw. Total installed power capacity was 2,529 mw (1989) and total energy generated was 7,434 mu in 1987-88. Number of electrified villages including hamlets was 34,242 and pumpsets energised numbered 5.92 lakh by March 1988.

TRANSPORT

Roads

Karnataka had 1,10,947 km (1988) of motorable roads including 1,968 km national highways.

Railways

Rail network in Karnataka was 2,944 km including broad gauge, metre gauge and narrow gauge in 1987-88.

Aviation

Bangalore, Belgaum and Mangalore are main airports. Vayudoot service operates from Bangalore, Bellary, Hubli, Mangalore and Mysore connecting other main cities of southern parts.

Ports

New Mangalore port is the main seaport in Karnataka which mainly handles cargo vessels. Special facilities for export of Kudremukh iron ore were developed at this port. Karwar port is also being developed with "Sea Bird" project of Indian Navy.

TOURIST CENTRES

Attractions in the state are Bangalore with its fine parks and industries; former princely capital Mysore with Brindavan Gardens and Srirangapattana (capital of Tipu) nearby; Shravanabelagola where the famous monolithic statue of Gomateswara 57 feet high stands; Belur, Halebidu and Somanathapura with famous Hoysala monuments; Badami, Aihole and Pattadakal for the 1,300 year old rock-cut and structural temples; Hampi, the famous open air museum (ancient Vijayanagar); Gulbarga, Bidar and Bijapur, renowned for their Indo-Sersanic monuments; Mangalore and Karwar for ports and beaches; Gokarna, Udupi, Dharmasthala, Ganagapura and Saundatti, famous pilgrimage centres. Department of Tourism has identified 230 tourist spots in the state.

GOVERNMENT

Governor: Bhanu Pratap Singh
Chief Minister: Veerendra Patil
Speaker: S.M. Krishna
Chief Secretary: K.S.N. Murthy
Acting Chief Justice: Justice Rama Joys
Jurisdiction of High Court: Karnataka.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

	District	Area (sq km)	Population	Headquarters
1	Bangalore	2,191	34,95,566	Bangalore[1]
2.	Bangalore Rural	5,814	14,52,044	Bangalore
3.	Belgaum	13,415	29,80,440	Belgaum
4	Bellary	9,885	14,89,225	Bellary
5	Bidar	5,448	9,95,691	Bidar
6	Bijapur	17,069	24,01,782	Bijapur
7.	Chickmagalur	7,201	9,11,769	Chickmagalur
8.	Chitradurga	10,852	17,77,499	Chitradurga
9	Dakshina Kannada	8,441	23,76,724	Mangalore
10.	Dharwad	13,738	29,45,487	Dharwad
11.	Gulbarga	16,224	20,80,643	Gulbarga
12.	Hassan	6,814	13,57,014	Hassan
13.	Kodagu	4,102	4,61,868	Mercara
14.	Kolar	8,223	19,05,492	Kolar
15	Mandya	4,961	14,18,109	Mandya
16.	Mysore	11,954	25,95,900	Mysore
17.	Raichur	14,017	17,83,822	Raichur
18.	Shimoga	10,553	16,56,731	Shimoga
19	Tumkur	10,598	19,77,854	Tumkur
20.	Uttar Kannada	10,291	10,72,034	Karwar

[1] Bangalore district was bifurcated as Bangalore and Bangalore Rural districts on 15 August 1986.

KERALA

Area: 38,863 sq km
Population: 2,54,53,680
Capital: Trivandrum
Principal language: Malayalam

HISTORY AND GEOGRAPHY

To a large extent the ancient history of Kerala is shrouded in mists of tradition. The most popular legend is that Kerala was raised from the depths of the ocean. Parasurama, one of the *avatars* of Vishnu had waged an epic series of vengeful war on the *kshatriyas*. Came a moment when Parasurama was struck by remorse at wanton annihilation he had wrought. He offered severe penance atop the mountain heights In a mood of profound atonement the sage heaved his mighty axe into the midst of the distant ocean. Waves foamed and frothed as a crescent-shaped stretch of land extending form Gokarnam to Kanniyakumari surfaced from the depth of the sea. Legends apart, Kerala culture has been an integral part of the mainstream of Indian culture. Its history is the story of synthesis, assimilation and fusion of old traditions and new values in every sphere of human thought and activity.

The state covers an area of 38,863 sq km along the 590 km sun-drenched foam-washed coastline of the Arabian sea. It lies between north latitudes 8° 18' and 12° 48' and east longitudes 74° 52' and 77° 22'. In between the high Western Ghats on east and the Arabian sea on west the width of the state varies from 35 km to 120 km. According to the geographical features, the state can be divided into hills and valleys, midland plains and coastal belt. There are 41 west-flowing big and small rivers originating from the Western Ghats and flowing towards the Arbaian sea. Three tributaries of the Kaveri originate in Kerala and flow east towards neighbouring states.

AGRICULTURE

Agriculture forms the mainstay of people. About 42 per cent of population depends upon agriculture for its livelihood. Area available for cultivation is about 74 per cent. Irrigated cropped area forms 12.71 per cent of total cropped area. Unique feature of Kerala's agriculture is predominance of cash crops. Kerala is major producer of coconut, rubber, pepper, cardamom, cocoa, cashew, arecanut, sugarcane, coffee, tea, ginger, etc. Tree spices like nutmeg, cinnamon, cloves, etc., are also cultivated. Rice and tapioca are important food crops. Climatic condition and fertility of the soil are ideal for paddy cultivation. Coconut is the most important cash crop of Kerala occupying 30 per cent of net cultivated area The state contributes almost entire production of tree spices in the country Among the spices, pepper is most important, earning maximum foreign exchange Tapioca is a tuber introduced as a cultivating crop and it is a poor man's menu. Many varieties of fruit crops are also grown in the state which serve as a subsidiary food of people. Banana, pineapple, mango and jackfruit are major fruit crops. Rubber, tea, coffee and cardamom are major plantation crops. Kerala is abundant in forest wealth which consists of some well known varieties of timber such as teak, black wood, ebony, soft wood and rose wood.

Kerala contributes a major share of sea-fish production in the country. Besides, it earns valuable foreign exchange. Fish wealth is estimated to be about 14 lakh tonnes. Prawns, oil sardine, mackerel and shrimp are main products of export.

INDUSTRY

Kerala is rich in industrial potentialities and infrastructure facilities such as hydro-electric power, rich forests, rare minerals like ilmenite and monozite and efficient system of transport and communications. Traditional industries are handloom, cashew, coir and handicrafts. Other important industries are rubber, tea, ceramics, electric and electronic appliances, telephone cables, tansformers, bricks and tiles, drugs and chemicals, general engineering, plywood splints and veneers, *beedi* and cigar, soaps, oils, fertilisers, *khadi* and village industry products. A number of manufacturing units have also sprung up for production of precision instruments, machine tools, petroleum and petroleum products, paints, pulp, paper, newsprint, glass and non-ferrous metals. Principal export products are cashewnut, tea, coffee, spices, lemongrass oil, sea foods, rose wood and coir. The state has abundance of important minerals like ilmenite, rutile, monazite, zircon, sillimanite, clay and quartz sand

IRRIGATION AND POWER

Major irrigation projects are Chalakkudy, Peechi, Malampuzha, Neyyar, Pothundy, Gayatri, Walayar, Vazhani, Mangalam and Cheerakuczhy. Besides, Kallada, Pampa and Periyar Valley schemes have also been commissioned. Of this Kallada irrigation scheme was completed by mobilising mass voluntary labour. This scheme is the largest of its kind to benefit about one lakh hectare of land. Important power projects are entirely hydro-based. They have an installed capacity of 1,476.5 mw and annual energy generation potential of 5,270 mw. Heavy rainfall and a large number of swift flowing rivers provide considerable potential for power generation. Important power projects are Panniyar, Sholayar, Sabarigiri, Sengulam, Peringalkuth, Neriamangalam, Idukki, Pallivasal, Edamalayar and Kuttiadi.

TRANSPORT

Kerala is comparatively well placed in matter of transport.

Roads.

Length of roads in the state is 1.06 lakh km. National highways constitute 843.5 km. The state had 1,343 vehicles per 100 sp km and 2,056 vehicles per1,00,000 people in 1988-89.

Railways

Railways have assumed significant importance. The state has a total railway network of 1,097 km and is now connected with almost all major places in rest of the country.

Aviation

There are three airports at Trivandrum, Cochin and Calicut. Trivandrum is the international airport in the state.

Ports

Major port at Cochin plays a vital role in expanding foreign trade as well as coastal trade. There are 13 other minor ports and harbours

FESTIVALS

Kerala is the home of many colourful festivals. Most of them have a religious fervour inspired by Hindu mythology Almost every village has its own fairs and festivals and festivities *Onam* is the most typical Kerala festival which has now earned an all-India character It coincides with harvest season and is an occasion of spontaneous revelry Onam celebrates home-coming of Mahabali, legendary king, who ruled over Kerala in an age of plenty but was pushed down to infernal regions by *Vishnu* in the form of *Vamana*. It is now celebrated as a national festival under Government auspices *Visu* is another festival celebrated on astronomical New Year day. *Navarathri* is celebrated as *Saraswathi Pooja* in Kerala *Mahasivarathri* is celebrated on the banks of Periyar river as a spectacular festival which is compared to *Kumbha Mela* of Prayag. The 41-day festival which coincides with *Makaravilakku* in Sabarimala Ayvappan temple attracts lakhs of people from India and abroad The *vallamkali* or boat race is typical of Kerala and except Nehru Trophy Boat Race conducted in the Punnamada Lake, all the boat festivals have a religious origin Vadakkunnatha temple at Trichur celebrates *Pooram* festival in April every year with an impressive procession of caparisoned elephants and display of pyrotechnics unparalleled. Main Christian festivals are Christmas and Easter Maramon convention held every year on the Pamba river bed is the biggest gathering of Christians in Asia. The Muslims celebrate Bakrid, Ramzan and *Muharram*. Apart from this they have *Jarram* and *Nercha* festivals.

TOURIST CENTRES

Kerala has the most attractive wild life sanctuary at Thekkadi on the banks of river Periyar. Kovalam is an integrated sea-side resort. Padmanabhaswami temple in Trivandrum is an exquisite specimen of south Indian architecture. Ponmudi is a famous hill station. Neyyar Dam is famous for its scenic beauty and Veli lagoon at the outskirts of Trivandrum with its boat club provides a chance for leisurely cruise. Other places of tourist interest are Kaladi (birth place of Adi Sankara), Kasaragoda (fort projecting on to the sea), Malampuzha (picturesque surroundings), etc.

GOVERNEMT

Governor: Dr. Sarup Singh
Chief Minister: E.K. Nayanar

Speaker: Varkala Radhakrishnan
Chief Secretary: S. Narayana Swamy
Chief Justice: Justice V.S. Malimath
Jurisdiction of High Court: Kerala and Lakshadweep.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1 Alleppey	1,883	25,50,145	Alleppey
2 Cannanore	4,958	28,03,467	Cannanore
3 Ernakulam	2,408	25,35,294	Ernakulam
4 Idukki	5,061	9,71,636	Painavu
5 Kasaragoda	NA	NA	Kasaragoda
6 Kottayam	2,204	16,97,442	Kottayam
7 Kozhikode	2,345	22,45,265	Kozhikode
8 Malappuram	3,548	24,02,701	Malappruam
9 Palghat	4,480	20,44,399	Palaghat
10. Pathanamthitta	NA	NA	Pathanamthitta
11 Quilion	4,620	28,13,650	Quilion
12 Trichur	3,032	24,39,543	Trichur
13 Trivandrum	2,192	25,96,112	Trivandrum
14. Wyanad	2,132	5,54,026	Kalpetta

MADHYA PRADESH

Area: 4,43,446 sq km
Population: 5,21,78,844
Capital: Bhopal
Principal language: Hindi

HISTORY AND GEOGRAPHY

Antiquity of Madhya Pradesh goes back to the dawn of history. Widely distributed rock shelter paintings present an eloquent testimony of its hoary past. Madhya Pradesh which forms the Central India is associated with some famous names in Indian history. Emperor Ashoka began his career from Ujjain. Major portion of Central India formed part of the Gupta empire (300-550 AD). In the first half of the seventh century it was part of the domains of famous emperor Harsha. The close of the tenth century was a period of confusion. In the early eleventh century the Muslims entered Central India, first Mahmud of Ghazni and then Mohammad Gori who incorporated certain parts with the Sultanate of Delhi. It also formed part of the Mughal empire with the rise of the Marathas. Till the death of Madhoji Scindia in 1794, Marathas ruled supreme in Central India, but after that independent and smaller states came into being. The disintegrated smaller states paved the way for British suzerainty. Some great women rulers like Rani Ahilyabai Holkar of Indore, Gond queen Rani Kamla Devi and Rani Durgawati have carved a niche for themselves in history.

Madhya Pradesh is bounded by seven states; on north-west by Rajasthan, north by Uttar Pradesh, north-east by Bihar, on east by Orissa, on south by Andhra Pradesh and Maharashtra and on west by Gujarat.

A notable feature of the demography of the state is that 23 per cent of people belong to scheduled tribes and another 14 per cent to scheduled castes. It has about one-fifth of total scheduled tribe population in the country.

AGRICULTURE

The economy of Madhya Pradesh is primarily agriculture-based. Eighty per cent of population is rural and 43 per cent of the area is cultivated. Nearly 190 lakh hectare is under cultivation and about 35 lakh hectare double cropped. Madhya Pradesh is the third largest producer of foodgrains and accounts for 11 per cent of total production in the country. In 1989 production of paddy, *jowar,* millet and wheat was respectively 49 lakh tonnes, 19 lakh tonnes and 46 lakh tonnes. Sixteen per cent of total production of pulses in the country is produced in Madhya Pradesh. Total production of oilseeds is 22 lakh tonnes. Nearly 14 lakh hectare of area produces soyabean which has given to the state the epithet 'soyabean state.' Total production of foodgrains is 159 lakh tonnes.

Nearly 47.2 lakh hectare of area which is 25.5 per cent of net sown area, is under irrigation.

Malwa region of the state abounds in rich black cotton soil. Low-lying areas of Gwalior, Bundelkhand, Baghelkhand and Chhattisgarh plains have lighter soils whereas the Narmada valley is formed on deep rich alluvial deposits.

Forests are the greatest gift of nature to Madhya Pradesh, 35 per cent of the area is under forest cover. Twenty one per cent of forest area in the country is in Madhya Pradesh. Forests are chiefly teak, *sal, saja,* etc. Forest Department in Madhya Pradesh generates employment of nearly 14 crore man-days every year which benefits mostly the poorest segment of society.

At present there are 11 National Parks and 32 wild life sanctuaries spread over 17,542 sq km.

INDUSTRY AND MINERALS

Madhya Pradesh has entered into an era of high technology industries like electronics, telecommunications, petro-chemicals, food processing and automobiles. It is the first state in the country to start producing optical fibre for purposes of telecommunications. Very large number of automobile industries are located in Pithampur which is also known as 'Detroit of India'. The state is leading in soyabean processing and manufacture of cement producing nearly 99 lakh tonnes.

Major public sector industries in the state are the steel plant at Bhilai, Bharat Heavy Electricals Ltd. at Bhopal, Bharat Aluminium Plant at Korba, Security Paper Mill at Hoshangabad, Currency Printing Press at Dewas, Newsprint Mill at Nepanagar and the alkaloid factory at Neemuch. There has been a tremendous diversification of industries with a wide range of industries such as mini steel plants, casting and forging units, engineering industries, fertiliser factories, paper and pulp units, tyre and tube units, plywood and veneering, manufacturing of gases, jelly–filled telephone cables, electronic goods, automobiles, etc. The state is known for its traditional handicrafts, handloom woven at Chanderi and Maheshwar is famous.

Rich and varied mineral deposits have been surveyed and identified in the state. Nearly 4 lakh sq km area has been surveyed and mapped geologically and 82,180 lakh tonnes of limestone deposits identified. There are 1,930 lakh tonnes of known deposits of bauxite. Known deposits of coal are 2,30,000 lakh tonnes. In 1988 the state produced 530 lakh tonnes of coal. Known deposits of iron ore are staggering at 24,000 lakh tonnes.

IRRIGATION AND POWER

Total installed capacity in the state is 3,087.50 mw, proposed to be doubled during Eighth Plan. Nearly 56,000 of 71,000 villages have been electrified in this far-flung state Number of energised irrigation pumpsets is nearly eight lakh. Nearly 12 lakh households have been provided single point connections in the state.

TRANSPORT

Roads

Total length of roads in Madhya Pradesh is 1,13,176 km. This includes 2,755 km of national highways.

Railways

Trunk rail route connecting northern India passes through Madhya Pradesh. Main junctions in the state are Bhopal, Bilaspur, Bina, Gwalior, Indore, Itarsi, Jabalpur, Katni, Ratlam, Ujjain and Khandwa.

Aviation

Major airports linking Delhi, Bombay, Varanasi and Nagpur are Bhopal, Raipur, Indore, Khajuraho and Gwalior. Stations airlinked by Vayudoot are Bhopal, Khajuraho, Satna, Rewa. Guna, Indore, Bilaspur, Raipur, Jagdalpur and Jabalpur. Bhopal is also connected to Jaipur and Nagpur by Vayudoot.

FESTIVALS

Tribals of Madhya Pradesh celebrate their very gay and colourful festivals with great deal of eclair. Almost all regions have their traditional festivals involving singing and dancing coinciding with the advent of different seasons.

TOURIST CENTRES

Madhya Pradesh is extremely rich in places of archaeological and architectural importance which include Gwalior Fort, Mandu Fort, Sanchi, Udaigiri, Bhoramdeo, Deepadeeh, Hingalajgarh and Khajuraho to mention only a few. These monuments have attracted tourists from all over the world. Wild life tourism in the state is justly famous for its great wealth of wild life to be seen here in such protected National Parks as Kanha, Bandavgarh, Panna and Satpura. There are beautiful rock shelter temples dating back to the days of our earliest ancestors.

GOVERNMENT

Governor: Kunwar Mehmood Ali Khan
Chief Minister: Sundar Lal Patwa
Speaker: Brij Mohan Mishra
Chief Secretary: R.P. Kapoor
Chief Justice: Justice S.D. Jha
Jurisdiction of High Court: Madhya Pradesh.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Balaghat	9,229	11,47,810	Balaghat
2 Bastar	39,114	18,42,854	Jagdalpur
3 Betul	10,043	9,25,387	Betul
4 Bhind	4,459	9,73,816	Bhind
5. Bhopal	2,772	8,94,739	Bhopal
6 Bilaspur	19,897	29,53,366	Bilaspur
7 Chhatarpur	8,687	8,86,660	Chhatarpur
8 Chhindwara	11,815	12,33,131	Chhindwara
9 Damoh	7,306	7,21,453	Damoh
10 Datia	2,038	3,11,893	Datia
11. Dewas	7,020	7,95,309	Dewas
12 Dhar	8,153	10,57,469	Dhar
13 Durg	8,537	18,90,467	Durg
14. East Nimar (Khandwa)	10,779	11,53,580	Khandwa
15 Guna	11,065	10,01,985	Guna
16 Gwalior	5,214	11,07,879	Gwalior
17. Hoshangabad	10,037	10,03,939	Hoshangabad
18 Indore	3,898	14,09,473	Indore
19. Jabalpur	10,160	21,98,743	Jabalpur
20. Jhabua	6,782	7,95,168	Jhabua
21. Mandla	13,269	10,37,394	Mandla
22. Mandsaur	9,791	12,93,399	Mandsaur
23. Morena	11,594	13,03,213	Morena
24. Narsimhapur	5,133	6,50,445	Narsimhapur
25. Panna	7,135	5,39,978	Panna
26. Raigarh	12,924	14,43,197	Raigarh
27. Raipur	21,258	30,79,476	Raipur
28. Raisen	8,466	7,10,542	Raisen
29. Rajgarh	6,154	8,01,384	Rajgarh
30. Raj Nandgaon	11,127	11,67,501	Raj Nandgaon
31. Ratlam	4,861	7,82,729	Ratlam
32. Rewa	6,314	12,07,583	Rewa
33. Sagar	10,252	13,23,132	Sagar
34. Satna	7,502	11,53,387	Satna

Distirct	Area (sq km)	Population	Headquarters
35 Sehore	6,578	6,57,381	Sehore
36 Seoni	8,758	8,09,713	Seoni
37. Shahdol	14,028	13,45,125	Shahdol
38. Shajapur	6,196	8,40,247	Shajapur
39 Shivpuri	10,278	8,65,930	Shivpuri
40 Sidhi	10,256	9,90,467	Sidhi
41. Surguja	22,337	16,33,476	Ambikapur
42. Tikamgarh	5,048	7,36,981	Tikamgarh
43 Ujjain	6,091	11,17,002	Ujjain
44 Vidisha	7,371	7,83,098	Vidisha
45 West Nimar (Khargone)	13,450	16,30,943	Khargone

MAHARASHTRA

Area: 3,07,690 sq km
Capital: Bombay
Population: 6,27,84,171
Principal language: Marathi

HISTORY AND GEOGRAPHY

Like other states Maharashtra too has a past steeped in legends, stories and myths. A clearer picture, however, is available with the historic times. First prominent ruling dynasty was the Satvahanas, Vakatakas were another ruling family. This region came to be ruled by various powers like the Chalukyas, Yadavas, Khaljis of Delhi and Bahamanis after which the whole principality broke into smaller sultanates.

It was only in 17th century with the arrival of Shivaji on the scene that modern Maratha nationality came into being. Shivaji united the hitherto scattered forces and made a noble and glorious power which challenged the Mughal advances beyond the Deccan Plateau As is usually the case with monarchies, with Shivaji's death came the disintegration of Marathas. After the failure of descendents, the Peshwas seized power, which was only a brief respite. Final nail in the Maratha confederacy was driven at the third battle of Panipat in 1761.

It once again flared into prominence with Nana Saheb leading his soldiers in the revolt of 1857. But it too was quashed and the British took over even the last remnants of power. Freedom struggle once again united people who under the leadership of Tilak and later Gandhi produced a Maratha Confederacy of a different sort. Maharashtra stood in the forefront of freedom struggle till 1947 and after that it is engaged in the task of nation building. Reorganisation of states brought for the first time all Marathi-speaking regions in one state of Maharashtra first by breaking up of old Central Provinces and Hyderabad and finally the bilingual Bombay State.

Arabian sea guards western boundary of Maharashtra while Gujarat and Madhya Pradesh are its neighbours on northern side. Karnataka and Andhra Pradesh are on its southern side.

AGRICULTURE

About 70 per cent of population in the state depends on agriculture. Net irrigated area (1988-89) was 23.43 lakh hectare. Gross irrigated area, however, increased by surface irrigation. Principal crops grown in the state are rice, *jowar*, *bajra*, wheat and variety of pulses. The state is an important producer of oilseeds. Groundnut, safflower are major oilseed crops. Important cash crops are cotton, sugarcane, tobacco, turmeric and a variety of vegetables. The state is also producing fruits and has a substantial area of orchards of orange, banana, mango, grape, cashewnut, sweet lime, etc.

INDUSTRY

According to latest available statistics, although Maharashtra has 9.2 per cent of total population in the country, it accounts for 11 per cent of organised industrial sector, 15 per cent of labour and 23 per cent of output and value-added, respectively in organised sector of the country.

With the all-India index with base of 1980-81, average index number of industrial production (for manufacturing sector) for the first eight months of 1988-89 was higher by 9.9 per cent than that of the corresponding period of 1987-88.

Important industry groups are. (1) food products (mainly sugar); (2) beverages, tobacco and tobacco products; (3) cotton textiles, (4) textile products; (5) paper, paper products and printing; (6) rubber, plastic, petroleum and coal products; (7) chemicals, chemical poroducts and pharamaceuticals; (8) metal products; (9) machinery; (10) electrical machinery, apparatus and appliances, and (11) transport equipment. Maharahtra is a leading state with 18.5 per cent of the country's total electronic production. Majority of production is from Bombay followed by Pune and Thane. (Santacruz Electronic Export Promotion Zone (SEEPZ) has produced goods worth Rs 10 crore.

Thrust of state government to encourage dispersal of industries outside industrially developed belt to other regions/areas is bearing fruit. Share of factory employment in districts other than Greater Bombay, Thane and Pune went up to 34 per cent in 1987 from 23 per cent in 1975.

With a view to giving further boost to growth and dispersal of industries in backward districts and talukas state government has undertaken several measures. Important among them are: (i) setting up of 65 growth centres and 165 mini growth centres and (ii) modification to further liberalise incentives with regard to sales tax, electricity duty and investment capital assets given to entrepreneurs under the package scheme of incentives.

Composition of organised industrial sector in Maharashtra has caused considedrable shift from predominantly consumer production to manufacture of capital goods. Relative contribution in terms of value–added of capital goods and intermediate goods had increased to 78 per cent in 1986-87 from 66 per cent in 1973-74.

Development of offshore oilfields at Bombay-high and in the nearby areas has led to development of storage facilities in Raigad and Bombay districts. Utilisation and processing industries connected with crude oil, gas and generation of electricity would contribute in a big way to development of basic and structural industries and ancillary and small scale industries in near future.

IRRIGATION AND POWER

During the Plan Years, *i.e.*, 1951 to 1980, nine major, 90 medium, 1,091 state sector minor irrigation and 340 lift irrigation projects were completed. During Sixth Plan (1980-85) six major, 35 medium, 274 state sector minor irrigation and 15 lift irrigation projects had been completd. Cumulative potential created at the beginning of Sixth Plan was 17.20 lakh hectare (including pre-Plan potential of 2.74 lakh hectare). Additional irrigation potential created during Sixth Plan was 5.50 lakh hectare. Thus cumulative irrigation potential created till June 1988 was 24.64 lakh hectare.

Derated capacity of hydro, thermal, nuclear and gas turbine power stations in the state was 7,496 mw during 1987-88. In all 39.413 towns and villages were electrified and 13.34 lakh pumpsets energised as at the end of March 1989.

TRANSPORT

Roads

Total length of roads as on 1 April 1989 was 1,69,921–1,21,207 surfaced and 48,714 km unsurfaced–including 2,916 km of national highway.

Railways

Maharashtra has approximately 5,440 km of railway route of which about 3,318 km is broad gauge. Main railway junctions are Bombay, Nagpur, Manmad, Akola, Pune and Sholapur.

Aviation

Bombay is one of the major international airports of the country. Besides, there are airports at Akola, Aurangabad, Kolhapur, Nagpur, Nanded, Ratnagiri and Sholapur. Vayudoot service links Bombay, Nagpur, Nanded, Pune, Ratnagiri and Sholapur with other important stations of the country.

Ports

Bombay is the biggest major port in India. A new port at Nhava Sheva off Bombay was opened in 1989. There are 48 minor ports also in the state.

TOURIST CENTRES

Some important tourist centres are Ajanta, Ellora, Elephanta, Kanheri and Karla caves; Mahabaleshwar, Matheran and Panchagani, Jawahar, Malghat hill stations, and religious places at Pandharpur, Nasik, Shirdi, Nanded, Aundhanagnath, Trimbakeshwar, Tuljapur, Ganapatipule and Ratnagiri.

GOVERNMENT

Governor: C. Subramaniam
Chief Minister: Sharad Pawar
Speaker: Madhukarrao Choudhari
Chief Secretary: D.M. Sukthankar
Chief Justice: Chittatosh Mukherjee
Jurisdiction of High Court: Maharashtra and Goa.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1 Ahmednagar	17,048	27,08,309	Ahmednagar
2 Akola	10,575	18,26,952	Akola
3. Amravati	12,212	18,61,410	Amarvati
4. Aurangabad	9,172	15,88,031	Aurangabad
5 Bhandara	9,213	18,37,577	Bhandara
6. Beed	10,624	14,12,342	Beed
7 Bombay (Greater)	603	82,43,405	Bombay
8 Buldana	9,661	15,08,777	Buldana
9. Chandrapur	10,490	14,18,306	Chandrapur
10 Dhule	13,150	20,50,294	Dhule
11 Gadchiroli	15,443	6,37,336	Gadchiroli
12 Jalgaon	11,765	26,18,274	Jalgaon
13 Jalna	8,656	10,32,157	Jalna
14. Kolhapur	7,633	24,65,427	Kolhapur
15. Latur	7,304	12,93,530	Latur
16 Nagpur	9,931	25,88,811	Nagpur
17 Nanded	10,502	17,49,334	Nanded
18. Nasik	15,530	29,91,739	Nasik
19 Osmanabad	7,510	10,29,702	Osmanabad
20 Parbhani	11,038	16,42,610	Parbhani
21 Pune	15,642	41,64,470	Pune
22 Raigarh	7,148	14,86,452	Raigarh
23. Ratnagiri	8,249	13,79,635	Ratnagiri
24. Sangli	8,572	18,31,212	Sangli
25. Satara	10,484	20,38,677	Satara
26. Sindhudurg	5,219	7,72,559	Kudal
27. Sholapur	14,874	25,91,220	Sholapur
28. Thane	9,558	33,51,562	Thane
29. Wardha	6,310	9,26,618	Wardha
30. Yavatmal	13,584	17,37,423	Yavatmal

MANIPUR

Area: **22,327 sq km**	***Population:*** **14,20,953**
Capital: **Imphal**	***Principal language:*** **Manipuri**

HISTORY AND GEOGRAPHY

Not much of recorded history of Manipur is available. It is commonly known that an adventurer named Pakhangha ascended the throne of one of the seven main principalities and founded a long dynasty which ruled Manipur till 1949. A king named Loi Yamba in 1074 consolidated the kingdom to a great degree. In the later years Kabaws (who lived at Indo-Burma border) tried to annex the south-eastern part of Manipur valley, which was foiled by King Khumomba. By 1470, Kabaw valley was annexed to Manipur. By 1542 Manipur dominions were further extended. There was a battle with Chinese in which Manipuris signally defeated them.

The next 200 years, Manipur saw a steady prosperous time. In 1762 Manipur king concluded a treaty with the British to ward off the growing menace of Burmese. It is well known that Burmese successes in Manipur, Assam and other places led to war between Burmese and the British which lasted seven years. The Treaty of Yandabo in 1826 ended the war but failed to solve the problem for Manipuris. The British government kept Manipur as a native state after much deliberations. After integration with the Indian Union in 1949, problem of Manipur did not end as it was made a part 'C' state. Central leadership was against its merger in Assam as was considered by States Reorganisation Commission. Hence it became a Union Territory under the States Reorganisation Act, 1956. At the growing dissent of the people, Manipur was made a full-fledged state of the Union in 1972.

Geographically the state is divided into two tracts–the hills comprising five districts and the plains with three districts. It is bounded by Upper Burma on east and Chin of Burma on south-east, Nagaland on north, Assam on west and Mizoram on south and south-west.

AGRICULTURE

Agriculture and allied activities is the single largest source of livelihood of majority of rural masses and is the mainstay of the state's economy. From a modest beginning in 1946 the state has now got sufficient number of trained manpower of its own to implement various schemes and programmes and agriculture.

Production of rice has gone up to 2,500 kg per hectare for high-yielding varieties. Consumption of fertilisers has reached 56 kg per hectare against the national average of 50 kg and is the highest in north-eastern region. In the valley the consumption rate has reached 92.6 kgs per hectare.

Nearly 92 per cent of the total land is hilly and covered with forests–reserve forest area 1,377 sq km and protected forest reserve 4,171 sq km. Manipur is the abode of Shiroy Lily, the paradise flower which is not found elsewhere in the world. It is the home of brow-antlered deer, one of the rarest species in the world.

INDUSTRIES

Manipur is an industrially backward state. However it is now taking rapid strides towards industrialisation. A mini cement plant has started production at Hundung in Ukhrul district. National Industrial Development Corporation has prepared project profile for 100 feasible industries in the state. An industrial growth centre at an investment of Rs 30 crore is to be set up near Imphal shortly. Manipur Electronic Development Corporation Ltd. has produced a number of both colour and black and white TV sets. Manipur Cycle Corporation Ltd'.s product - 'Sangai' is now on the road. *Vanaspati* plant, drug formulation plant, bi-oxyl plant and ginger dehydration plant are being set up.

IRRIGATION AND POWER

The state is a late starter in major and medium irrigation, but within a short period of about one and a half decade remarkable progress has been made and 58,100 hectare of land brought under irrigation by June 1989. The state has so far taken up seven projects under major and medium irrigation programme. These projects on completion will provide an ultimate annual irrigation benefit of 1,08,900 hectare with water supply and power components of 19 mgd and 9 mw respectively.

Power development started in Manipur with the installation of the first hydro-power house at Leimakhong in 1930 having two sets of 100 kw and 56 kw capacities. It was exclusively meant for Imphal and its suburbs. Installed capacity which was only 264 kw before Plans rose to 10,715 kw by 31 August 1989. Power supply position in the state showed a marked improvement with the recommissioning of Loktak hydro project in August 1984. In 1988-89, 1,065 villages had been electrified.

TRANSPORT

Roads

National highways No 39 and 53 pass through Manipur for a distance of 431 km. The state has a total of 5,135 km of roads, both metalled and unmetalled as on 31 March 1989.

Railways

No rail route exists in the state. It will soon be on the country's railway map with the reaching of rail head at Jiribam. Survey has already been started for railway line from Diphu-Dhansari-Karong. It is also proposed to connect towns along the foothills of the state by a circular railway line.

Aviation

Imphal is the only airport which is linked with other stations in the region by Indian Airlines and Vayudoot service. It is also proposed to connect Jiribam, Kohima and Tamenglong with Imphal by helicopter service.

FESTIVALS

Thirteen festivals in 12 months–thus goes a popular Manipuri saying. Every month is associated with a festival or two and Manipuri festivals mean songs and dances and sometimes sports. Important among them are *Dal-Yatra, Lai-Haraoba, Heikru Hitongba, Rasa-Lila, Cheiraoba, Niongol Chak-Kouba, Ratha- Yatra, Kwak-Yatra, Kut, Gun- ngai, Idul-Fitre* and Christmas.

TOURIST CENTRES

Moirang, Keikul, Lamjao, Phubala, Sendra, Kaina, Waithou, Khong-jon, Moreh, Ukhrul, Mao, Churachandpur, etc., are some important tourist centres in the state.

GOVERNMENT

Governor: Chintamani Panigrahi
Chief Minister: R.K. Ranbir Singh
Speaker: H. Borobabu Singh
Chief Secretary: B.R. Basu
Jurisdiction of High Court: Falls under jurisdiction of Guwahati High Court.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Bishnupur	530	1,41,150	Bishnupur
2. Chandel	3,313	56,444	Chandel
3. Churachandpur	4,570	1,34,776	Churachandpur
4. Imphal	1,303	5,56,146	Imphal
5. Senapati	3,271	1,55,421	Senapati
6. Tamenglong	4,391	62,289	Tamenglong
7. Thoubal	405	2,31,781	Thoubal
8. Ukhrul	4,544	82,946	Ukhrul

MEGHALAYA

Area: 22,429 sq km
Capital: Shillong
Population: 13,35,891
Principal languages: Khasi, Garo, Jaintia and English

HISTORY AND GEOGRAPHY

Apart from the account about more important Khasi kingdoms including Jaintia and Khyrim in the chronicles of Ahoms and Kacharis, little is known about hill tribes of what is now Meghalaya, prior to the advent of the British. Khasis and Jaintias are believed to be remnants of the first Mongolian overflow into India. They established themselves in their present homeland in the remote past. Garos are a part of the great Bodo race, a branch of Tibeto-Burman family.

Their first contacts with the British date to 1765 when Khasis were organised into 25 principalities. About this time the Jaintia kingdom of Jaintia Hills had organised itself politically. Troubles with Burma made it imperative for the British to negotiate a treaty of mutual assistance with both these territories. Similar was the case with Garo Hills. Later on at the time of independence, these rulers and chieftains collectively signed the Treaty of Accession to the Union of India.

After 1947 interest of the tribal people of these areas could not be overlooked. Tribal sub-committee was appointed to study the situation which culminated in establishment of district councils for all hill districts of Assam. District councils were given powers of legislation in matters pertaining to land, local administration, management of forests and such other matters. In the years that came, these councils failed in all-round development of people and a Hill State movement started which was even put before the States Reorganisation Commission in 1954. After being rejected by the Commission, an All Party Hill Leaders' Conference was formed in 1960 to augment their demand for a separate state peacefully. In 1970 by way of reconciliation Government conferred on hill districts the status of an autonomous state, but within Assam State This failed to satisfay people, but it ultimately led to the achievement of an autonomous state of Meghalaya in 1972.

Meghalaya literally means 'abode of clouds' It is predominantly inhabited by Khasis, Jaintias and Garos. These tribal communities are descendants of very ancient people having distinctive traits and ethnic origin.

It is a land-locked territory bounded on north by Gopalpur, Kamrup, Nowgong and Karby Anglong districts of Assam and on east by districts of Cachar and North Cachar hills, also of Assam. On south and west lies Bangladesh. It lies between 25°1' and 26°5' latitude and 85°49' and 92°52' longitude.

A number of rivers drain this mountainous state. In Garo Hills, the Manda, the Damring and the Jinjiram flow towards north while the Ringge and the Ganol flow to west. Those that flow to south are the Simsang which is the biggest river in Garo Hills and the Bhugi. In Khasi and Jaintia Hills, rivers that flow to north include the Khri, the Umtrew, the Umiam, the Umkhen besides the Kupli on the border between Jaintia Hills and North Cachar hills. The Kynshi, the Umiam Mawphlang and the Umngot flow to south into Bangladesh.

AGRICULTURE

Meghalaya is basically an agricultural state. An overwhelming 83 per cent of total population of the state depends primarily on agriculture for their livelihood. Of the total area of approximately 22.5 lakh hectare about 2.17 lakh hectare of land is under field crops. Topography, physical features and land conditions as prevailing in the state provide extremely limited scope for extensive cultivation and bringing additional area under wet cultivation. Rice and maize are major food crops grown throughout the state with appreciable improvement in yield. Wheat has been introduced recently and the result is quite encouraging. Potato, jute, mesta, cotton, mustard, arecanut, ginger, turmeric, betelvine, black pepper, bayleaves, etc., are some cash crops of the state. Orange, pineapple, bannana, lemon, guava, *lichi,* jackfruits and temperate fruits such as plums, pears and peaches are some important horticultural crops. Apart from above crops, the state has achieved signal success in the cultivation of tea, mushroom and tomato.

Meghalava is rich in forests. Total forest area in the state is 8,51,000 hectare with reserved forests 71,000 hectare, protected forests 1,000 hectare and other unclassed forests 7,79,000 hectare. Principal timber species are *sal, nahor, champa, chap, gomati, bhola* and *pine. Birch, schima, oak, makria sal, beach* and magnolia are also found. Principal forest products are timber, bamboo, reeds, cane, ipecac, medicinal herbs and plants, cinnamon and lemon grass. Azaleas and rhododendrons grow wild in the forests of Khasi and Jaintia Hills and many kinds of beautiful orchids are found in the woods Pitcher plant, insect eating plant of botanical wonder is found in plentv in West Khasi Hills district of Meghalaya and it is said that such plant is found nowhere else in the world.

Meghalaya is rich in wildlife There are elephants, tigers, bears, wild boars, leopards, golden cats, leopard cats and jungle cats, deers of various kinds, binturongs, slow lorises, capped *langurs* and hoolocks, flying squirrels, giant squirrels, etc. There are also many rare and interesting birds including hornbills, partridges, pheasants, teals, snipes, geese, ducks and quails.

INDUSTRY AND MINERALS

Pace of industrialisation of the state has been very slow. However, there has been a steady increase in the number of registered small scale units over the years. These units are mostly in the tiny sector covering servicing industries, bakeries, furniture-making, iron and steel fabrication, tailoring, knitting, etc. The public sector cement factory at Cherrapunji has been expanded to production capacity of 930 tonnes of ordinary portland cement per day. A plant for the manufacture of tantalum capacitors has been set up by Meghalaya Electronics Development Corporation in collaboration with M/S FIRADEX of France at Barapani industrial area near Shillong.

Other industrial units are Meghalaya Plywood Ltd., Associated Beverages, Komorah Limestone Mining Company, Umiam Calcinates and Meghalaya Watches (an assembly unit of HMT).

Mineral wealth of Khasi Hills, Jaintia Hills and Garo Hills districts includes coal, sillimanite, limestone, dolomite, fire clay, felspar, quartz and glass sand. Ninetyfive per cent of India's total output of sillimanite is produced in West Khasi Hills district. Garo Hills district has deposits of coal, limestone, fire clay and light coloured sandstone. Total estimated reserves of coal in the state are of the order of 50 crore tonnes and that of limestone around 400 crore tonnes.

IRRIGATION AND POWER

The state has many swift flowing rivers from which cheap hydro-electricity has been generated. There are at present four hydel projects with the installed capacity of 125.2 mw and a micro-hydel project with an installed capacity of 1.57 mw. There is also a diesel project of 1.95 mw.

TRANSPORT

Roads

Three national highways pass through the state for a distance of 461 km. The state had 5,139 km of both surfaced and unsurfaced roads in 1985-86.

Railways

The state is not connected by railway network.

Aviation

Shillong airport at Umroi is the only airport in the state linking it with other neighbouring states. Vayudoot service operates from here. A helicopter passenger service runs between Shillong, Guwahati and Tura.

FESTIVALS

Pomblang Nongkrem: This is one of the two important festivals of Khasis. It is a five-day religious festival held annually as a thanksgiving to God Almighty for good harvest and to pray for peace and prosperity. All the people in general join in this dance festival, which is a rhythmic form of prayer for the well-being of all. This festival is celebrated at Smit village about 11 km from Shillong during October-November. *Shad Sukmynsiem:* This is another important festival of Khasis. Shad Sukmynsiem means dance with a joyful heart. It is a thanksgiving dance. Maidens dressed in traditional fineries and men-folk in colourful costumes participate in the dance to the accompaniment of the drums and the flute. It is held in Shillong in the month of April every year. *Behdiemkhlam:* This is the most important festival of Jaintias and is celebrated after sowing. It is celebrated annually at Jowai town usually in the month of July. Men only, young and old, take part in dancing to the tune of drums and flute. *Wangala:* This is the most important festival of Garos. It is a harvest festival which lasts for several days. After harvesting in the field is over the annual dance of joy and thanksgiving commences. It is associated with two impressive ceremonies *Rugula* and *Sasat Soa*.

TOURIST CENTRES

Shillong, the capital city of the state has a number of beautiful spots. They are: Ward's Lake, Lady Hydary Park, Polo ground, Elephant Falls, Shillong Peak overlooking the city and green golf course, one of the best golf courses in the country.

Other important centres of tourist interest are: Umiam lake by the side of the main Guwahati-Shillong road; Cherrapunji, 1,290 metres above sea level and 53 km from Shillong; Nohsngithiang falls popularly known as Mawsmai falls at Mawsmai village near Cherrapunji; Mawsmai cave at Mawsmai village; hot spring of sulphur water at Jakrem; Ranikor, one of the best fishing spots. Other tourist centres include Mawysnram, Thadlaskein Lake, Nartiang in Jaintia Hills, Siju, Balpakram, Tura Peak, etc.

GOVERNMENT

Governor: Madhukar Dighe
Chief Minister: B.B. Lyngdoh
Speaker: P.R. Kyndiah
Chief Secretary: V. Ramakrishnan
Jurisdiction of High Court: Falls under jurisdiction of Guwahati High Court.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. East Garo Hills	2,603	1,36,550	Williamnagar
2. East Khasi Hills	5,196	5,11,414	Shillong
3 Jaintia Hills	3,819	1,56,402	Jowai
4. West Garo Hills	5,564	3,69,877	Tura
5. West Khasi Hills	5,247	1,61,576	Nongstoin

MIZORAM

Area: 21,081 sq km	*Population:* 4,93,757
Capital: Aizawl	*Principal languages:* Mizo and English

HISTORY AND GEOGRAPHY

Mizoram is a mountainous region which became 24th state of Indian Union in February 1987. It was one of the districts of Assam till 1972 when it became a union territory.

After being annexed by the British in 1891, for the first few years Lushai Hills area in the north remained under Assam while the southern half remained under Bengal. Both these parts were amalgamated in 1898 into one district called Lushai Hill District under the Chief Commissioner of Assam. With implementation of the North-Eastern Re-organisation Act in 1972 Mizoram became a union territory and as a sequel to the signing of the historic Memorandum of Settlement between Government of India and Mizo National Front in 1986, it was granted statehood on 20 February 1987.

Sandwiched between Burma in east and south and Bangladesh in west, Mizoram occupies an area of great strategic importance in north-eastern corner of India.

Hills in Mizoram run from north to south with a tendency to be higher in east of the territory and tapering in north and south. Average height of hills is about 900 metre, the highest peak being Blue Mountain (Phawngpui) rising to 2,210 metre.

Mizoram has great natural beauty and an endless variety of landscape and it is rich in fauna and flora. Almost all kinds of tropical trees and plants thrive in Mizoram.

The word 'Mizo' is a generic term and is used to mean hillmen or highlanders. They came under the influence of British missionaries in 19th century and now most of the Mizos are Christians. One of the beneficial results of missionary activities was the spread of education. Mizo language has no script of its own. The missionaries intruduced the Roman script for Mizo language and formal education.

AGRICULTURE

People of Mizoram are mainly engaged in agriculture. Main pattern of agriculture followed is *jhum* or shifting cultivation in addition to wet-rice cultivation. During 1989-90 it was proposed to bring new areas under cultivation including 2,700 hectare in Chhimtuipui district thereby increasing rice production by over 4,000 tonnes per year. Nearly 900 hectare of agricultural land is to be developed by terracing and another 550 hectare for plantation. Another 2,000 hectare of flat land was developed for foodgrains production. Timber, bamboo, *agor*, etc , are the important forest products.

As there is a thick cover of forests in the state seven new forest divisions are proposed to be created. Forest resources survey field operation is almost nearing its completion.

INDUSTRY

There is no major industry in Mizoram. Handloom and handicrafts are cottage industries. Rice-milling, oil and flour-milling, mechanised carpentry workshops, saw-milling, brick making and furniture workshops are small scale industries. One ginger-oil and oleoresin extraction plant has been established recentrly. An industrial growth centre at Luangmual, a mini industrial estate, cottage and village industries, etc., a handloom and handicraft development corporation and a rural industrial development centre were established in 1988-89. An agro-industrial development corporation was proposed to be set up besides Mizoram Electronic Development Corporation during 1989-90. More than 63 bio-gas plants were also set up during the year.

IRRIGATION AND POWER

Potential created for irrigation till the end of Sixth Plan, *i.e.* , 1984-85 was 3,200 hectare. In 1985-86 it was 750 hectare and in 1986-87, 615 hectare.

Additional potential of 4,455 hectare was expected to be created by the end of Seventh Plan. Various steps are being taken towards self-sufficiency in foodgrains, aiming at completion of 14 minor irrigation projects and taking up of 18 new projects. Ground water exploration is also to be intensified.

During 1988-89 diesel generation sets with a total capacity of 6.3 mw were commissioned and installed. Two units of 350 kw in Tuirivang hydel project were also commissioned while construction of three new mini hydel projects. namely, Maicham (2 mw), Tuipui (0.5 mw) and Tuisumpui (0.45 mw) are being intensified. The commissioning of 132 kv sub-station at Aizawl connecting Mizoram with north-eastern grid, has enabled the state to draw additional grid power up to 6 mw. During 1989-90 construction of four new 132 kv lines connecting Lungdar 'E', Marpara, Lungsen and Lawngtlai were to be taken up besides 65 more villages proposed to be electrified. Generation of energy through non-conventional sources has also been taken up. Wind electric generators were installed at Hmuifang and Reiek while more will be installed at various places shortly.

TRANSPORT

Length of roads in the state is about 3,000 km including national highways. Rail link has not been established with the state, but Aizawl is airlinked.

FESTIVALS

Mizos are mainly agriculturists and all their festivals are closely associated with slashing down the jungles, burning the trunk and leaves and cultivating the land. *Pawlkut* is the greatest harvest festival. Other important festivals are *Mimkut* or maize festival, *Chapcharkut* or jungle clearing festival, Christmas, etc. Music and dance are a great passion with Mizos. Some main dances are *Cheraw* or bamboo dance, *Khuallam* or visitors/guests dance, *Chheihlam* or rice beer dance, etc.

GOVERNMENT

Governor: Swaraj Kaushal
Chief Minister: Lal Than Hawla
Speaker: Hiphei
Chief Secretary: M. Lalmanzuala
Jurisdiction of High Court: Falls under jurisdiction of Guwahati High Court.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Aizawl	12,588	3,40,826	Aizawl
2. Chhimtuipui	3,957	66,420	Saiha
3. Lunglei	4,536	86,511	Lunglei

NAGALAND

Area: 16,579 sq km	*Population:* 7,74,930
Capital: Kohima	*Principal languages:* Ao, Konayak, Chang, Sangtam, Angami, Sema and Lotha

HISTORY AND GEOGRAPHY

Like all territories of north-eastern India, Nagaland too has its share of legends and stories Nagas are basically tribal people, hence had no system of government. This situation changed in 12th and 13th centuries when this territory was run over by Ahom kings. It was in 19th century that there came a change in the history of Nagas when the British appeared on the scene. In fact, British used Nagaland to better manage the affairs of Assam, Manipur and Burma.

Nagaland did not remain untouched by 1857 revolt and later in the struggle for freedom. After independence, in 1957 this territory was made a Centrally-administered area, administered by Governor of Assam. It was known as Naga Hills district of Assam. This failed to quell popular aspirations and unrest began Hence in 1961 this was renamed as Nagaland and given the status of a state of the Indian Union, which was formally inaugurated in 1963

Situated in extreme north-east, Nagaland is bounded in west and north by Assam, east by Burma and south by Manipur

AGRICULTURE

Agriculture is the main occupation of 90 per cent of population in the state. Rice is the important foodgrain. Area under *jhum* cultivation is about 76,512 hectare and under terraced cultivation a mere 27,133 hectare.

INDUSTRY

Three medium level industries have been established. Nagaland Sugar Mill at Dimapur has an installed capacity of 1,000 tonnes of cane per day. There is one pulp and paper mill at Tuli and one plywood factory at Tizit. In 1986 a *khandsari* mill with a daily crushing capacity of 200 metric tonnes was commissioned. In January 1988 a mechanised brick plant was commissioned at Dimapur. A TV assembly unit has also been set up at Dimapur. Handloom and handicrafts are important cottage industries. There are 500 private citronella cultivators. Minerals found in the state are clay, coal, limestone, glass, sand, etc.

IRRIGATION AND POWER

Minor irrigation works are mostly meant to divert small hill streamlets to irrigate valleys used for rice cultivation. Under minor irrigation, surface minor irrigation covered 2,700 hectare and ground water covered 100 hectare during 1988-89. Number of electrified villages stands at 1,112. Nagaland has achieved cent per cent electrification of rural areas.

TRANSPORT

Roads

Road network consists of national, state, district and other roads with a total length of 9,345 km.

Railways/Aviation

The only rail and air station in Nagaland is Dimapur. Boeing service is available daily.

FESTIVALS

Some of the important festivals are *Sekrenyi, Moatsu, Tuluni* and *Tokhu Emong*. All tribes celebrate their distinct seasonal festivals with a pageantry of colour and a feast of music.

GOVERNMENT

Governor: M.M. Thomas
Chief Minister: S.C. Jamir
Speaker: T.N. Ngullie
Chief Secretary: T.C.K. Lotha
Jurisdiction of High Court: Falls under jurisdiction of Guwahati High Court. There is a circuit bench at Kohima.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Kohima	4,041	2,50,105	Kohima
2. Mokokchung	1,615	1,04,193	Mokokchung
3. Mon	1,786	78,938	Mon
4. Phek	2,026	70,618	Phek
5. Tuensang	4,228	1,52,332	Tuensang
6. Wokha	1,628	57,583	Wokha
7. Zumheboto	1,255	61,161	Zunheboto

ORISSA

Area: 1,55,707 sq km
Capital: Bhubaneshwar
Population: 2,63,70,271
Principal language: Oriya

HISTORY AND GEOGRAPHY

Orissa, the land of the Oriyas was known as Kalinga in ancient days. In third century BC (268 BC) Ashoka, Mauryan emperor, sent a powerful force to conquer Kalinga which offered stubborn resistance. Kalinga was subdued but the carnage which followed, struck Ashoka with remorse. After the death of Ashoka, Kalinga regained its independence. In second century BC, it became a powerful country under Kharvela. With the death of Kharvela, Orissa passed into obscurity. In fourth century AD Samudragupta invaded Orissa which lay astride his path and overcame resistance offered by five of its kings. In 610 AD Orissa came under the sway of king Sasanka. After Sasanka's death Harsha conquered Orissa

Orissa had its own independent dynasty of rulers (Ganga dynasty) in seventh century AD. In 795 AD Mahasivagupta Yajati II came to the throne and with him began the most brilliant epoch in the history of Orissa. He united Kalinga, Kangoda, Utkala and Koshala in the imperial tradition of Kharvela. Under kings of Ganga dynasty, Orissa continued to flourish. Narashingha Dev of this dynasty is reputed to have built the unique Sun temple at Konark.

From 14th century, Orissa was ruled successively by five Muslim kings till 1592 when Akbar annexed it to the Mughal empire. With the decline of the Mughals, Marathas occupied Orissa. They continued to hold it till the British took over in 1803.

Orissa was made into a separate province in 1936. With independence, princely states in and around Orissa surrendered their sovereignty to Government of India. By the States Merger(Governor's Provinces) Order, 1949, princely states of Orissa were completely merged with State of Orissa on 19 August 1949.

Although state of Orissa has many ancient names like Kalinga, Utkal and Udra, it is known to the outside of the state, more popularly, as the land of Lord Jagannath who is the presiding deity of *Shree Kshetra* or *Purusottama Kshetra*. Jagannath is intimately connected with social, cultural and religious life of Orissa. Hence its culture can be rightly summed up as the culture of Lord Jagannath. Orissan history established the fact that Buddhism, Jainism, Islam and Christianity had considerable impact on people of Orissa in different periods.

Orissa is situated in north-eastern section of the Indian Peninsula between 17° 48' and 22° 34' north latitude and 81° 24' and 87° 28' east longitude, slightly arched by placid blue water of the Bay of Bengal on east. Orissa is bounded on north by Bihar, on west by Madhya Pradesh, on north-east by West Bengal and on south by Andhra Pradesh.

The state may be broadly divided into four distinct geographical regions, each with different characteristics, namely, northern plateau, central river basin, eastern hills and coastal plains.

AGRICULTURE

Cultivation of rice is the principal occupation of nearly 76 per cent of population in the state. Foodgrains production rose from a meagre level of 38.73 lakh tonnes in 1979-80 to a record level of 74 lakh tonnes in 1988-89 which is an all-time record. Yield of rice which stagnated around one tonne per hectare for more than 20 years showed an increasing trend and touched the level of about 1,225 kg per hectare by 1988-89. Orissa has become self-sufficient in rice production. This rise bears testimony to efficient transfer of technology to farmers which helped in providing resilience to crop production.

Fertiliser consumption which is an important input in agricultural production showed increasing trend and reached a level of 25 kg in 1988-89 per hectare against 8.15 kg in 1979-80 and 17 kg in 1987-88. Fertiliser consumption per hectare in Sambalpur district is 54 kg. Oilseeds production jumped from 2.79 lakh tonnes in 1979-80 to about 9.06 lakh tonnes by 1988-89 registering an increase of about 325 per cent. The area under oilseeds during the same period increased from 7.22 lakh hectare to 10.89 lakh hectare. Groundnut coverage increased from about 1.75 lakh hectare in 1979-80 to about 3.76 lakh hectare by 1988-89, while production rose from 1.23 lakh tonnes to 5.63 lakh tonnes. Today groundnut yield of 1,497 kg per hectare in Orissa is the highest in the country against the national average of about 757 kg in 1985-86. Soyabean, a protein rich crop was introduced for the first time on a commercial scale in 2,000 hectare *during 1987-88. Its coverage went up* to about 12,000 hectare in 1988-89 and was further planned to cover 20,000 hectare by Seventh Plan.

Total area under forests is 55,785 sq km which is about 35.8 per cent of the total geographical area of the state. Categorywise 48.7 per cent of forests are reserved, 24.7 per cent protected and 26.4 per cent undemarcated protected forests. Massive plantation programmes have been undertaken in the state during the last decade. About 3.60 lakh hectare of land had been covered under plantation during 1980-89. Under the state social forestry project aided by Swedish International Development Authority (SIDA) which was launched in 1983-84, plantation over 33,590 hectare has been raised, 14,184 hectare of degraded forests rehabilitated and 3.50 crore seedlings distributed for farm forestry. Orissa Plantation Development Corporation set up in 1985 has established nurseries for raising 1.50 crore seedlings.

INDUSTRY

Pace of industrial progress has been quickened in recent years. Before Sixth Plan, there were only 57 large and medium scale industries. During Sixth Plan, 91 large and medium industries were established. 184 large and medium industries were in operation employing 83,349 persons by December 1987, with total investment of Rs 848 crore. Growth of small scale industries sector has also been phenomenal. Their number increased from 9,119 in 1979-80 to 31,922 by December 1988, providing employment for about 2.45 lakh persons. Major breakthrough in industrial sector came with the expanision of cottage industries, the number of which reached 7,71,686 by 1987-88. This sector provides employment to about 12.65 lakh persons. Similar progress has been registered in case of handloom industries. Number of looms in organised sector increased from 39,214 in 1980-81 to 99,935 by September 1988.

The state has been keen on development of electronics industry. Eight electronic units have already been set up while 22 high-tech electronic industries are in the pipeline. Steps are being taken to develop Bhubaneshwar as a 'software city'. A supercomputer has already been installed. Steps have been taken to develop a technology park at Chandaka near Bhubaneshwar which would have an assimilation centre, documentation centre and training facilities and space for electronic assembly unit. There is also a proposal to set up a satellite earth station at Bhubaneshwar.

IRRIGATION AND POWER

Of the total cultivated land of 65.59 lakh hectare about 59 lakh hectare can be brought under irrigation through all sources. At the beginning of Sixth Plan only 12.9 lakh hectare of land had irrigation facility. Objective of Sixth and Seventh Plans was to extend irrigation facilities especially in drought-prone and water-scarcity areas. Efforts were made to complete on-going projects on priority basis and to take up new projects.

At the commencement of Sixth Plan, 39 on-going major and medium irrigation projects, three extension/modernisation schemes and 331 minor irrigation projects were under different stages of execution. During Sixth Plan period 16 more medium irrigation and 67 minor irrigation projects were taken up. Aggregate irrigation potential from all sources including lift points and dugwells enabled the state to reach the level of 17.22 lakh hectare at the and of Sixth Plan. This accounts for 26.25 per cent of the net area sown as against 19.6 per cent achieved at the commencement of Sixth Plan.

At the commencement of Seventh Plan 46 on-going major medium projects, 12 major projects and 17 World Bank assisted medium projects and 14 non-World Bank medium projects were under execution. Under minor irrigation sector, 71 schemes under Irrigation Advance Programme, 125 modernisation programmes in drought-affected pockets, 62 projects under renovation and 15 schemes under ADAPT in Koraput and Kalahandi districts, were taken up.

Installed capacity of power generation which was 914 mw by 1980, went up to 1,134 mw in 1985. With the commissioning of two units of Rangali project in 1985-86 and two units of Upper Kolab in 1987-88, installed capacity of power generation at present is 1,394 mw.

With a view to meeting the growing power demand, some new projects taken up are: Rengali Stage-II (3x50 mw), Upper Kolab Stage-II (1x80 mw) and Potteru Small Hydro-electric Project (2x3 mw) during Seventh Plan. Establishment of a thermal power station with an installed capacity of 840 mw in Sambalpur district in-state sector and Talcher Super Thermal Power Project with an installed capacity of 3,000 mw in Central sector have been taken up. These would contribute significantly to power generation in the state. A scheme for modernisation and renovation of Talcher Thermal Power Station has also been taken up. By Seventh Plan, installed capacity would go up to 1,611 mw. A project of renovation of power channel was taken up and completed in record time for installation of the seventh unit at Hirakud Power House.

Up to 1979-80, 17,231 villages were electrified. By 1988-89 this went up to 29,186 covering over 62 per cent villages. Up to 1979-80, 12,863 pumpsets were energised and this went up to 46,002 by 1988-89. Under *Kutirjyoti Programme* 23,198 houses belonging to weaker sections were electrified till March 1989.

TRANSPORT

Roads

In 1984-85, length of roads was—state highways 2,846 km, national highways 1,625 km, other Public Works Department roads 61,330 and Council roads 5,048 km. There were 1,83,888 motor vehicles in 1984-85 and 81 km express way connected Daitari mining area with Paradeep.

Railways

Total length of south-eastern railway in 1984-85 was 1,982 km; 1,839 km broad gauge and 143 km narrow gauge.

Aviation

There is an airport at Bhubaneshwar with regular scheduled services to New Delhi, Calcutta, Vishakhapatnam and Hyderabad.

Ports

Paradeep which was declared a major port in 1966 has been developed to handle four metric tonnes of traffic. Other minor ports are at Chandaballi and Gopalpur.

TOURIST CENTRES

Some important tourist centres are: Bhubaneshwar—city of temples, Puri, Konark, Cuttack, Lake Chilka, Similipal National Park, Barheipani waterfalls, Ushakothi wildlife sanctuary, Hirakud, Duduma waterfalls, etc.

GOVERNMENT

Governor: J.D. Sharma
Chief Minister: Biju Patnaik
Speaker: Judhistira Das
Chief Secretary: R.K. Mishra
Chief Justice: Justice Harilal Agarwala
Jurisdiction of High Court: Orissa.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Sambalpur	17,516	22,80,976	Sambalpur
2 Sundergarh	9,712	13,37,871	Sundergarh
3. Keonjhar	8,303	11,14,622	Keonjhar
4. Mayurbhanj	10,418	15,81,873	Baripada
5. Balasore	6,311	22,52,808	Balasore
6 Cuttack	11,142	46,28,800	Cuttack
7 Dhenkanal	10,827	15,82,787	Dhenkanal
8. Phulbani	11,119	7,17,280	Phulbani
9. Balangir	8,913	14,59,113	Balangir
10 Kalahandi	11,772	13,39,192	Bhawanipatna
11. Koraput	26,961	24,84,005	Koraput
12 Ganjam	12,531	26,69,899	Chatrapur
13 Puri	10,182	29,21,045	Puri

PUNJAB

Area: 50,362 sq km
Capital: Chandigarh

Population: 1,67,88,915
Principal language: Punjabi

HISTORY AND GEOGRAPHY

Ancient Punjab formed part of the vast Indo-Iranian region. In the later years to come it saw the rise and fall of various powers like Mauryans, Bactrian Greeks, Sakas, Kushans and Guptas. The medieval Punjab saw the supremacy of the Muslims. The first Muslim dynasty was followed by the Ghoris, the Slaves, the Khalijis, the Tughlaks, the Sayyids, the Lodhis and the Mughals.

Fifteenth and sixteenth centuries mark a period of watershed in the history of Punjab. *Bhakti* Movement received a great impetus with the advent of Sikhism on the scene. *Prima facie* it was socio-religious movement which was more interested in fighting evils in religion and society. But in the process of its evolution it was forced by circumstances to acquire militancy. It was Guru Gobind Singh, the tenth *guru* who transformed Sikhs into a militant sect and created *Khalsas*. They rose to challenge and overthrow the Mughal empire in north. In fact, it was the intolerance of the Mughal emperors which turned peaceful Sikhs into a warring race.

Fighting the Mughals had become a regular compaign in Sikh history. Guru Gobind Singh was succeeded by Banda Singh Bahadur and after his death in 1716 political influence of Sikhs dwindled and disappeared from Punjab. However, with the deterioration of the Mughals in Delhi, Sikhs began reorganising themselves and *Misls–Confederacies* came into existence. In one of the Misls was born Ranjit Singh who united all other

Confederacies and built a mighty kingdom of the Sikhs. But soon after his death, entire edifice collapsed on account of internal intrigues and British mechanisations. After two abortive Anglo-Sikh wars, Punjab was finally annexed to the British empire in 1849.

Fight against the British rule had begun long before Gandhi's arrival on the scene. Revolt was expressed through religious movements of a revivalist or reformist character. First it was *Namdhari* sect which believed in self-discipline and self-rule. Later, it was Lala Lajpat Rai who played a leading role in freedom movement.

Punjab's tale of woe did not culminate with independence as it had to face the holocaust of partition along with displaced persons with harrowing memories. Besides their rehabilitation, there was the task of the reorganisation of the state. Eight princely states of East Punjab were grouped together to form one single state called PEPSU–Patiala and the East Punjab States Union with Patiala as its capital. PEPSU state was merged with Punjab in 1956. The reorganised Punjab came into being in 1966.

Situated in north-western corner of the country, Punjab is bounded on west by Pakistan, on north by Jammu and Kashmir, on north-east by Himachal Pradesh and on south by Haryana and Rajasthan.

AGRICULTURE

About 83.5 per cent of total geographical area of Punjab is under cultivation. Three-fourth of population is engaged in agriculture. The state is surplus in foodgrains especially wheat and rice. Other main foodgrains are maize, gram, barley and pulses. Production of foodgrains during 1988-89 was 170.92 lakh tonnes. Major cash crops are oilseeds, sugarcane, cotton and potato. Punjab having only 1.54 per cent geographical area of the country had contributed 56.1 per cent wheat and 48.1 per cent rice to Central Pool during 1988-89 crop season.

In 1988-89 there was 2,84,237 hectare of forest land of which 1,34,804 hectare belonged to Forest Department. It is approximately 5.65 per cent of the total area of the state.

INDUSTRY

Important industrial items produced in the state are bicycles, bicycle parts, sewing machines, hand-tools, machine tools, auto parts, electronic items, sports, surgical and leather goods, hosiery, knitwear, fastners, nut and bolts, textiles, sugar, vegetable oils, etc. On 31 March 1989 there were 1,48,717 (provisional) small and village industrial units with an investment of Rs 1,076.33 crore. Besides, there were 340 (provisional) large and medium units with an investment of over Rs 2,212 crore (provisional) giving employment to more than 1,55,699 persons.

IRRIGATION AND POWER

Important irrigation works implemented since 1947 are Bhakra Nangal Dam, Bhakra Canals, Harike Barrage with a new lined canal called Sirhind

Feeder and remodelling of Madhopur Headworks into barrage. Madhopur-Beas Link was constructed to transfer surplus waters of Ravi to Beas. A similar project, Sutlej-Beas Link Project, has been completed. Pong Dam on Beas is an important hydro-electric project. Fourth unit of the Dam was commissioned in March 1979. First power house comprising three units of Mukerian Hydel Project was commissioned in October 1983. First unit of Stage-I of Ropar Thermal Plant was commissioned in September 1984 and second unit of Stage-II was commissioned in March 1985. First micro-hydel project at Nidampur was commissioned in October-December 1986. Now a 10 mw rice straw plant, first of its kind in India, is under construction at Jalkheri in Patiala district.

Total installed capacity in different fields of power development by October 1989 was 1,797 mw. The state already achieved cent per cent electrification in May 1976. For irrigation purposes 6.83 lakh pumpsets had been energised up to 1987-88.

TRANSPORT

Roads

Surfaced road length on 31 March 1988 was 35,964 km and unsurfaced roads 10,711 km. Of surfaced roads, national highway was 964 km.

Railways

Rail network in Punjab is extensive and up to 1988 length of rail routes passing through the state was around 3,636.19 km. Rail communication with Pakistan also emanates from Punjab (Amritsar).

Aviation

There are airports at Amritsar, Bhatinda, Ludhiana and Chandigarh which serves as capital.

TOURIST CENTRES

Main tourist centres are: Amritsar—Golden temple, Durgiana Mandir, Jallianwala Bagh, Anandpur Sahib, Bhakra-Nangal, Jalandhar, Ludhiana, Pathankot, Patiala, etc.

GOVERNMENT

Governor: Virendra Verma
Chief Secretary: S.L. Kapoor
Chief Justice: Justice S.S. Dewan
Jurisdiction of High Court: Punjab and Haryana.

AREA, POPULATION AND HEADQUARTERS OF DISTRICS

District	Area (sq km)	Population	Headquarters
1. Amritsar	5,087	21,88,490	Amritsar
2. Bhatinda	5,551	13,04,604	Bhatinda
3. Faridkot	5,740	14,36,228	Faridkot
4. Ferozpur	5,874	13,07,804	Ferozpur
5 Gurdaspur	3,562	15,13,435	Gurdaspur
6. Hoshiarpur	3,881	12,43,807	Hoshiarpur
7. Jalandhar	3,401	17,34,574	Jalandhar
8. Kapurthala	1,633	5,45,249	Kapurthala
9. Ludhiana	3,857	18,18,912	Ludhiana
10 Patiala	4,584	15,68,898	Patiala
11. Rupnagar	2,085	7,16,662	Rupnagar
12, Sangrur	5,107	14,10,250	Sangrur

Note· President's rule was promulgated in Punjab on 11 May 1987

RAJASTHAN

Area: 3,42,239 sq km	*Population:* 3,42,61,862
Capital: Jaipur	*Principal languages:* Hindi and Rajasthani

HISTORY AND GEOGRAPHY

Rajasthan is the second largest state in India areawise. Prior to independence, the state was known as Rajputana or the home of Rajputs—a martial community who ruled over this area for centuries.

History of Rajasthan dates back to the pre-historic times. Around 3000 and 1000 BC it had a culture akin to that of Indus Valley civilisation. It was the Chauhans who dominated Rajput affairs from seventh century and by 12th century they had become an imperial power. After the Chauhans it was the Guhilots of Mewar who controlled the destiny of the warring tribes. Besides Mewar, other states also historically prominent were, namely, Marwar, Jaipur, Bundi, Kota, Bharatpur and Alwar. Other states were only offshoots of these. All these states accepted British Treaty of Subordinate Alliance in 1818 as it protected the interest of the princes. It naturally left the peole discontented.

After revolt of 1857 the people united themselves under the leadership of Mahatma Gandhi to contribute to the freedom movement. With introduction of provincial autonomy in 1935 in British India, agitation for civil liberties and political rights became stronger in Rajasthan. Though each state tried to put a stop to the rising agitation but it continued to grow powerful. After 1947 process of uniting scattered states commenced from 1948 to the year 1956 when the States Reorganisation Act was promulgated. First came Matsya Union (1948) consisting of a fraction of states. Slowly and gradually other states merged with this Union. By 1949, major states like Bikaner, Jaipur, Jodhpur and Jaisalmer joined this Union making it United States of Greater Rajasthan. Ultimately by 1956, present state of Rajasthan formally came into being with Ajmer State, Abu Road Taluka and Sunel Tappa joining it.

Entire western flank of the state borders with Pakistan while Punjab, Haryana, Uttar Pradesh and Madhya Pradesh abound Rajasthan in north, north-east and south-east and Gujarat in south-west.

AGRICULTURE

Total cultivable area in the state is 266.06 lakh hectare, sown area 154.29 lakh hectare and irrigated area 43.51 lakh hectare. Estimated agricultural production was 112 lakh tonnes. Principal crops cultivated in the state are *jowar, bajra,* maize, gram, wheat, oilseeds, cotton, pulses and tobacco. Cultivation of vegetables and citrus fruits like orange and malta has also picked up over the past few years. Commercial crops are red chillies, *methi, hina,* mustard and cuminseed.

INDUSTRY AND MINERALS

Major industries are textiles, rugged and woollen goods, sugar, cement, glass, sodium plants, oxygen and acetylene, vegetable dyes, pesticides, insecticides, zinc ingots and sheets, fertilisers, railway wagons, ball bearing, water and electric meters, sulphuric acid, television sets, synthetic yarn and insulating bricks, polished and unpolished precious and semi-precious stones, spirit and wine, etc. Besides, caustic soda, calcium carbide, nylon and tyre cords, etc., are also produced, Important Central undertakings are zinc smelter plant, Dehari (Udaipur), copper plant (Khetri-Jhunjhunun) and precision instrument factory (Kota). Small scale industrial units numbered 1.42 lakh with a capital investment of Rs 670 crore and employment potential of five lakh persons.

Rajasthan accounts for entire output of zinc concentrates, emerald and garnet, gypsum-94 per cent, silver ore -76 per cent, asbestos-84 per cent, felspar-68 per cent and mica-12 per cent. The state has rich deposits of salt, rock phosphate, marble and red stone.

IRRIGATION AND POWER

Irrigation potential in the state had been raised to a level of 43.51 lakh hectare by March 1989. Provision for irrigation in Seventh Plan was Rs 517.86 crore of which Rs 160 crore was earmarked for the year 1989-90. Multi-purpose irrigation projects are: Thein Dam, Siddhmukh, Jakham, Bisalpur, Okhla-barrage. Gurgaon Canal, Beas, Nohar and Narmada. Medium irrigation projects are: Meja feeder, Bheem Sagar, Harish Chandra Sagar, Somkagdar, Som-Kamla-Amba, Panchana, Bandi, Sujdra, Baman, Wagan diversion, Bassi, Kothari, Sawan-Bhadon, Kanota, Vilas, Chapi, Parawan and Gardada.

Besides generation of 465 crore units of power from its own resources, the state purchases 397.2 crore units of power from neighbouring states to meet the requirement. Number of villages electrified and that of wells energised as on 31 March 1989 was 24,882 and 3.18 lakh respectively. Efforts were also being made to exploit solar and wind power. More than 28.000 bio-gas plants were also installed in the state by 1987-88.

TRANSPORT

Roads

Total length of roads is 55,123 km including 2,521 km of national highway.

Railways

Jodhpur, Jaipur, Udaipur, Ajmer, Bikaner, Kota and Bharatpur are main rail junctions on broad gauge line linking Delhi and Bombay.

Aviation

Regular air services connect Jaipur, Jodhpur and Udaipur with Delhi and Bombay, Vayudoot service links Bikaner, Jaisalmer, Jodhpur and Kota.

FESTIVALS

Besides national festivals of *Holi, Deepawali, Vijayadashmi, Muharram,* Christmas, etc., birth anniversaries of gods and goddesses, saintly figures and folk heroes and heroines are celebrated. Important fairs are *Teej, Gangaur* (Jaipur) annual *Urs* of Ajmer Sherif and Galiakot, tribal *Kumbh* of Beneshwar (Dungarpur), *Mahaveer Fair* at Shri Mahaveerji in Sawai Madhopur, *Ramdevji Fair* (Ramdeora-Jaisalmer), *Gogaji Fair* (Gogamedi-Ganganagar), *Tejaji Fair* (Parbetsar-Nagaur), *Janbheshawrji Fair* (Mukam-Bikaner), *Kartik Poornima* and *Cattle Fair* (Pushkar-Ajmer), etc.

TOURIST CENTRES

Jaipur, Jodhpur, Udaipur, Bikaner, Mount Abu, Sariska tiger sanctuary in Alwar, Keoladeo bird sanctuary, Bharatpur, Ranthambhore tiger sanctuary in Sawai Madhopur, Ajmer, Jaisalmer, Pali, Chittorgarh are important places of tourist interest in the state.

GOVERNMENT

Governor: Debiprasad Chattopadhyaya
Chief Minister: Bhairon Singh Shekhawat
Speaker: Hari Shankar Bhabhra
Chief Secretary: V.B.L. Mathur
Jurisdiction of High Court: Rajasthan.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1 Ajmer	8,481	14,40,366	Ajmer
2 Alwar	8,380	7,71,173	Alwar
3 Banswara	5,037	8,86,600	Banswara
4 Barmer	28,387	11,18,892	Barmer
5 Bharatpur	5,084	12,99,073	Bharatpur
6. Bhilwara	10,455	13,10,379	Bhilwara
7. Bikaner	27,244	8,48,749	Bikaner
8. Bundi	5,550	5,86,982	Bundi
9 Chittorgarh	10,856	12,32,494	Chittorgarh
10. Churu	16,830	11,79,466	Churu
11. Dholpur	3,009	5,85,059	Dholpur
12. Dungarpur	3,770	6,82,845	Dungarpur
13 Ganganagar	20,634	20,29,968	Ganganagar
14. Jaipur	14.068	34,20,574	Jaipur
15. Jaisalmer	38,401	2,43,082	Jaisalmer
16. Jalor	10,640	9,03,073	Jalor
17 Jhalawar	6,219	7,84,998	Jhalawar
18. Jhunjhunun	5,928	12,11,583	Jhunjhunun
19 Jodhpur	22,850	16,67,791	Jodhpur
20. Kota	12,436	15,59,784	Kota
21 Nagaur	17,718	16,28,669	Nagaur
22. Pali	12,387	12,74,504	Pali
23. Sawai Madhopur	10,527	15,35,870	Sawai Madhopur
24 Sikar	7,732	13,77,245	Sikar
25 Sirohi	5,136	5,42,049	Sirohi
26 Tonk	7,194	7,83,635	Tonk
27. Udaipur	17,279	23,56,959	Udaipur

SIKKIM

Area: 7,096 sq km

Capital: Gangtok

Population: 3,16,385

Principal languages: Lepcha, Bhutia, Nepali and Limbu

HISTORY AND GEOGRAPHY

Very little is known about the early history of Sikkim. It is commonl believed that in 17th century Phuntsog Namgyal became the first ruler o the Namgyal dynasty which was ruling till Sikkim joined Indian Union i 1975.

A mountain state in the eastern Himalayas, Sikkim is bounded on west b Nepal, on north by Tibet, on east by Bhutan and on south by West Benga Sikkim is strategically important for India as it lies astride the shortest rout from India to Tibet. The state is entirely mountainous. Covered with dens forests where *sal, simal,* bamboo and other trees thrive, some finest fores lie in the northernmost areas in Lachen and Lachung. Mountains rise t 7,000 m and above, Kanchenjunga(8,579 m) being world's third highe peak.

Sikkim has several hundred varieties of orchids and is frequently referre to as 'botanist's paradise'.

AGRICULTURE

State's economy is basically agrarian. Maize, rice, wheat, potato, large cardamom, ginger and orange are principal crops. Sikkim has the largest area and the highest production of cardamom in India. Ginger, potato, orange and off-season vegetables are other cash crops.

Since the area available for cultivation constitutes only 11 to 12 per cent of total land utilisation in the state, scope of increasing production through area expansion is limited. Thrust in agricultural development, therefore, has been to maximise productivity and net income per unit area. Emphasis, at present, is being given for development of commercial and horticulture crops. Floriculture is being promoted. Intensive agriculture is being followed with adequate support of improved agricultural inputs.

INDUSTRY

Sikkim has been declared as industrially backward and Department of Industries has launched a number of promotional schemes. In order to plan strategy to develop industrial climate in the state, 'No Industries District Survey Reports' have been prepared in respect of two of the four districts.

A multi-purpose industrial development and investment corporation has been established for accelerating industrial development in the state by providing financial assistance to small and medium scale industries and also by procuring scarce and controlled industrial raw materials for consumer units.

A number of industrial units have sprung up in the state. They produce fruit jam and juice, bakery products, beer, *vanaspati*, matches, washing soap, plastic goods, wrist watches, leather goods, electric cables, barbed wires and industrial jewels. At the same time, consistent efforts have been made to promote and preserve traditional arts and crafts such as wood carving, carpet weaving, *thanka* painting and *lepcha* weaving. A government institute for cottage industries has been set up to look after these aspects.

IRRIGATION AND POWER

Since 1979 the state has implemented 65 new schemes and 134 renovation schemes bringing water to 15,106 hectare of land of which 8,650 hectare is being utilised. Channels (length 99 km) had been constucted between 1985-88.

Two small hydel schemes Rongnichu Hydel Scheme Stage II and Rimbi Hydel Scheme Stage II have been completed. Further construction at Upper Rongnichu Hydel Project (8mw) and Miyongchu (4mw) hydel schemes is in full swing. Besides this, a new scheme called Kalez Hydel Scheme (2 mw) near Dentam and Rangeet Hydel Project has also been taken up. Lachen Micro Hydel Scheme(100 kw) is ready for generation. All these power stations will meet the ever growing power requirements of the state.

TRANSPORT

Roads

Road length in the state was 1,456 km by March 1990

Railways

Railway link has not been made with the state. Nearest railway station is in Siliguri in West Bengal.

Aviation

There is no airport in Sikkim. Bagdogra airport in West Bengal caters to the state.

FESTIVALS

Main festivals of Sikkim are *Magha Sankranti, Losar, Chaita Dasai, Durga Puja, Laxmi Puja, Losoong* and *Namsoong*.

TOURIST CENTRES

Some important tourist centres are: Gangtok, Bakkhim-natural garden, Yuksom-meeting of three great lamas, Dhubdi monastery, Tashiding monastery, Rumtek monastery, etc.

GOVERNMENT

Governor: Admiral (Retd) R.H. Tahiliani, PVSM,AVSM
Chief MInister: Nar Bahadur Bhandari
Speaker: Dorje Tsering Bhuria
Chief secretary: K.C. Pradhan
Chief Justice: Justice B. Misra
Jurisdiction of High Court: Sikkim.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1 East District	954	1,38,762	Gangtok
2 North District	4,226	26,455	Mangan
3 South District	750	75,976	Namchi
4 West District	1,166	75,192	Gyalshing

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TAMIL NADU

*Area:*1,30,058 sq km	*Population:* 4,84,08,077
Capital: Madras	*Principal language:* Tamil

HISTORY AND GEOGRAPHY

Tamil Nadu has a hoary antiquity. Though early *Sangam* classics throw vague historical references, only from the Pallavas we pass to recorded history.

South India had remained under the hegemony of the Cholas, the Cheras and the Pandyas for centuries. The Pallavas held supremacy from about the second quarter of the fourth century AD. They were the originators of the famous Dravidian style of temple architecture. The last Pallava ruler was Aparajita in whose reign the later Cholas under Vijayalaya and Aditya asserted themselves by about 10th century. At the end of 11th century, Tamil Nadu was ruled by several dynasties like the Chalukyas, Cholas and Pandyas. In the two centuries that followed, the imperial Cholas gained paramountancy over South India.

Muslims gradually strengthened their position, which led to the establishment of the Bahamani sultante by the middle of the 14th century. At the same time, the Vijayanagar kingdom quickly consolidated itself and extended its sway over the whole of South India and at the close of the century, Vijayanagar became the supreme power in South. However, it crumbled at the battle of Talikota in 1564 to the confederate forces of the Deccan sultans.

Even during the period of the tumultuous confusion that followed the battle of Talikota, European commercial interests had appeared as rivals in the arena of South India. The Portuguese, the Dutch, the French and the English came in quick succession and established trading centres known as 'Factories'. East India Company which had established their factory at Masulipatnam, now in Andhra Pradesh, in 1611 gradually annexed territories by encouraging enmity among the native rulers. Tamil Nadu was one of the first of British settlements in India. The state is the successor to the old Madras Presidency which in 1901 covered the bulk of the southern Peninsula. The composite Madras state was later reorganised and the present Tamil Nadu was formed.

Tamil Nadu is bounded on north by Andhra Pradesh and Karnataka, on west by Kerala, on east by the Bay of Bengal and on south by the Indian Ocean.

AGRICULTURE

Agriculture is the mainstay of Tamil Nadu's economy. Main food crops are rice, maize, *jowar bajra, ragi* and pulses. Important commercial crops are sugarcane, oilseeds, cotton, chillies, banana, coffee, tea and rubber.

Rice yield per hectare in the state is among the highest in India. Tamil Nadu is one of the major producers of sugarcane. As in the case of groundnut production, the state stands next only to Orissa. Major forest products are timber, sandal wood, pulp wood and fuel wood. Minor forest products are bamboo, eucalyptus, rubber, tea (green leaves), cashew, honey, ivory, etc.

INDUSTRY AND MINERALS

Major industries are cotton textiles, chemical fertilisers, paper and its products, printing and allied industries, diesel engines, automobiles and its ancillaries. bicyles, cement, sugar, iron steel, railway wagons and coaches.

A number of public sector undertakings are located in the state. Important among them are Neyveli Lignite Complex, Integral Coach Factory, High Pressure Boiler Plant, Hindustan Teleprinters, Hindustan Photo Films, Madras Refineries, Madras Fertilisers, Heavy Vehicles Factory and Pugalur Paper Factory.

Tamil Nadu accounts for nearly one fourth of the spinning capacity in India. One fifth of cement, caustic soda and nitrogenous fertilisers and one tenth of the nation's production of sugar, bicycles and calcium carbide are produced here, besides safety matches and finished leather goods.

Limestone, megnesite, mica, quartz, felspar, salt, bauxite, lignite and gypsum are some of the minerals found in the state.

The state is an important exporter of tanned skin and hides and leather goods, cotton piece goods and yarn, tea, coffee, spices, engineering goods, tobacco, handicrafts and black granites.

IRRIGATION AND POWER

Important irrigation schemes implemented since independence are the Lower Bhavani, the Amaravathi, the Vaigai, the Parambikulam-Aliyar, the Krishnagiri, the Sattanur, the Pullmbai-Kattalai High Level Canal, the Gomukhi Nadhi, Chittoor Pattannamkal and the Pennaniar.

Besides the state has a number of hydro-electric stations and thermal stations.

The atomic power plant at Kalpakkam in Chengalpattu district was commissioned in 1983.

TRANSPORT

Roads

The length of road network in Tamil Nadu is nearly 1.5 lakh km including about 1,800 km of national highway.

Railways

Main rail junctions in the state include. Madras, Madurai, Salem, etc.

Aviation

Madras being the international airport in southern region, is the main centre of airline routes. Besides, there are airports at Tiruchirapalli and Madurai having regular services to important metropolitan cities in India. Coimbatore, Madras, Madurai and Thanjavur are also air-linked by Vayudoot service.

Ports

Major ports in the state are Madras and Tuticorin. Cuddalore and

Nagapattinam are lesser known ports. There is an inland container depot to cater to the export traffic at Coimbatore linked to Cochin port in Kerala.

FESTIVALS

Pongal is the harvest festival celebrated for four days in mid-January commencing from the last day of the Tamil month *Margazhi*. The sun, the earth and the cattle are worshipped by farmers as thanksgiving for a bounteous harvest. *Adiperukku* is an important festival celebrated on the 18th day of the Tamil month *Adi* on the banks of rivers welcoming the fresh gush of water brought by monsoon. It marks the commencement of new farming operations. The river Kaveri, now full with water is considered as a pregnant woman and a variety of rice called *Chithra Annam* is cooked and offered to her on this day to fulfil her desire. *Karthigai Deepam* is celebrated all over the state, especially at Thiruvannamalai in the month of *Karthigai* when lamps are lit in every house in remembrance of Lord Shiva who took the form of a blazing mountain to pacify Brahma and Vishnu disputing their relative superiority. *Pankuri Uthiram* is a temple festival celebrated in March-April in almost all the Saivite temples of Tamil Nadu. Temple car festival is the highlight on the 10th day celebrations. *Arupathimoovar* is celebrated at Kapaleeswarar temple, Mylapore, Madras. All 63 *Saiva* saints are taken in a procession along with main deity around the temple. *Chithirai* is a very popular festival of Madurai celebrated for a month in April-May in symbolic remembrance of the celestial marriage of Goddess Meenakshi and Lord Sundareswarar. *Float festival* celebrated in Junuary at Vandiyur Mariamman temple tank in Madurai on the occasion of full moon is spectacular in many respects. *Brahmotsavam* is celebrated in Vaishnite temples for 20 days in December-January. It attracts a large number of devotees at Srirangam, Kancheepuram and Srivilliputhur. *Velankanni* is celebrated for 10 days at Velankanni commencing from 7 September at the Minor Basilica dedicated to 'Our Lady of Health'. *Nagoor Kanduri* is celebrated at Nagoor. *Music festival* is celebrated every year at Thiruvaiyaru in January in honour of poet saint Thyagaraja. Musicians from all over India assemble here and take part in the festival. *Summer festival* is held in hill stations of Tamil Nadu, namely, Ooty, Kodaikanal and Yercaud in May every year. As part of cultural programmes, flower shows and boat pageants are organised.

TOURIST CENTRES

Madras, Mamallapuram (ancient architecture and beach resorts), Kancheepuram, Chidambaram, Thiruvannamalai, Srirangam, Madurai, Rameswaram, Tirunelveli, Kanniyakumari, Thanjavur, Velankanni, Nagoor, Northamalai, Chithanna Vasal, Moovarkoil, Kalugumalai - (monument centres), Courtallam, Hogenakkal, Papanasam, Suruli, Ooty (Udhagamandalam), Kodaikanal, Yercaud-Elagiri hill stations, Guindy (Madras), Mudumalai, Anamalai, Mundanthurai, Kalakad, Point Calimere wild life sanctuaries, Vedanthangal bird sanctuary and Vandalur zoological park near Madras.

GOVERNMENT

Governor: Surjit Singh Barnala
Chief Minister: Dr. M. Karunanidhi
Speaker: Tamizkudiamagan
Chief Secretary: M. M. Rajendran
Chief Justice: Justice A. S. Anand
Jurisdiction of High Court: Tamil Nadu and Pondicherry.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1 Anna[1]	5,836	15,64,448	Dindugal
2 Chengalpattu	7,863	36,16,508	Kanchipuram
3. Coimbatore	7,469	30,60,184	Coimbatore
4 Dharmapuri	9,622	19,97,060	Dharmapuri
5 Kamarajar[1]	4,222	13,40,907	Viruthunagar
6 Kanniyakumari	1,684	14,23,399	Nagercoil
7. Madras	170	32,76,622	Madras
8 Madurai	6,558	29,71,489	Madurai
9 Nilgiri	2,549	6,30,169	Udagamandalam
10 North Arcot	12,268	44,14,324	Vellore
11 Pasumon Muthuramalingam[1]	4,137	9,72,756	Sivagangai
12 Periyar	8,209	20,68,462	Erode
13 Pudukkottai	4,661	11,56,813	Pudukkottai
14 Ramanathapuram	4,216	10,21,844	Ramanathapuram
15. Salem	8,650	34,41,717	Salem
16. South Arcot	10,895	42,01,869	Cuddalore
17 Thanjavur	8,280	40,63,545	Thanjavur
18 Tiruchirapalli	11,095	36,12,320	Tir[illegible]apalli
19 Tirunelveli Kattabomman	6,794	23,23,170	Tirunelveli
20 VO Chidambaranar[1]	4,635	13,50,581	Tuticorin

1. These four new districts were formed after 1981 census

TRIPURA

Area: 10,486 sq km
Capital: Agartala
Population: 20,53,058
Principal languages: Bengali, Kakborak and Manipuri

HISTORY AND GEOGRAPHY

History of Tripura dates back to the *Mahabharata*, the *Puranas* and Pillar inscriptions of Emperor Ashoka. There are no historical records available of Tripura except *Rajmala* which is the chronicle of the kings of the ruling family of Tripura. According to it, rulers were known by the surname 'Fa' meaning 'father'. There is a reference of rulers of Bengal helping Tripura kings in the fourteenth century. Kings of Tripura had to face frequent Mughal invasions with varying successes. They defeated Mohammedan sultans of Bengal in several battles.

Nineteenth century marked the beginning of modern era in Tripura when king Maharaja Birchandra Manikya Bahadur modelled his administrative set-up on the British India pattern and brought in various reforms. His successors ruled over Tripura till 1947 when it was annexed to Indian Union. After independence it became a Part 'C' state and with the reorganisation of states in 1956, it became a Centrally-administered territory. In 1972 this territory attained the status of a full-fledged state along with Manipur and Meghalaya.

Tripura is strategically situated between the river valleys of Burma and Bangladesh. Encircled almost on three sides by Bangladesh, it is linked with Assam only in north-east.

AGRICULTURE

In Tripura, principal crops are paddy, wheat, jute, mesta, potato, sugarcane and oilseeds. There are several govermment orchards-cum-nurseries stocked with quality mother plants. There are hundreds of sales points for distribution of these planting materials and the entire requirement of the state is met out of it. Recently north-eastern regional agricultural marketing corporation has set up one modern fruit juice concentrate plant at Nalkata in the state.

INDUSTRY

Tea is major industry in Tripura. An area of 6,500 hectare was brought under tea cultivation by December 1989. Average production is 40 lakh kg tea per year. This industry employs about 10,000 workers. The only medium scale industry, a jute mill has been set up in public sector employing about 2,000 workers. There are about 3,500 small scale industrial units in the state.

Major small scale industries functioning in the state are aluminium, utensiles, saw mill, steel furniture, carpentry, pharmaceuticals, rice mill, washing soap, PVC pipes, tyre retreading, flour mill, aluminium conductors, leather goods, polythene pipes, veneer and ply wood, fruit canning, candle, oil mills, confectionery, TV or fan assembling, stainless steel products, bulb manufacturing, monofilament ropes, etc. Finding of huge reserves of natural gas in Tripura has opened up a new horizon for industrialisation. Effective steps have been taken up for setting up of a 300 tonne per day methanol plant and a 50 tonne per day *vanaspati* oil plant under joint venture.

Handloom is the single largest industry while weaving is essentially a tribal household industry. As per latest survey report, about 26,000 families are engaged in weaving. There are 1,15,000 looms including 54,000 loin looms. Tripura Handloom and Handicrafts Development Corporation Ltd. and Tripura apex weavers society cater to needs of 150 registered primary weavers' cooperative society and innumerable individual weavers' production and marketing of the same in and outside the state. Sericulture industry is also developing fast. Total yearly production of cocoons is 19,530 kg at present. Another important cottage industry of Tripura is handicrafts. Very skilled artisans produce excellent items of bamboo and cane which are in great demand in and outside the state.

IRRIGATION

Net irrigation potential created up to 31 March 1987 was 36,837 hectare-5,877 hectare from ground water and 30,960 hectare from surface water sources. An additional area of 1,889 hectare (net) was brought under irrigation during 1987-88—110 hectare from ground water and 1,779 hectare from surface water sources. During 1988-89 additional area of 3,353 hectare (net) was brought under irrigation—765 hectare from ground water and 2,588 hectare (this includes 1,000 hectare from Gumti medium irrigation projects) from surface water sources. Thus, cumulative net irrigation facilities available in the state were 42,079 hectare by 1988-89. Irrigation is mainly done through minor irrigation schemes such as lift irrigation, deep tubewells, seasonal *bundhs*, shallow tubewells, etc. At present there are three on-going medium irrigation projects, namely, Gumti Medium Irrigation Project at Maharani (South Tripura district), Khowai Medium Irrigation Project at Chakmaghat (West Tripura district) and Manu Medium Irrigation Project at Nalkata (North Tripura District). Net irrigation potential targetted to be created under them is 4,486 hectare, 4,515 hectare and 4,198 hectare respectively. Gumti Medium Irrigation Project at Maharani was partly commissioned on 14 February 1989 and during 1988-89 an area of 1,000 hectare (net) had been brought under assured irrigation of 4,486 hectare (net) of culturable command area under the project. Other two medium irrigation projects at Chakmaghat and Nalkata are under various stages of construction.

TRANSPORT

Roads

Road length in Tripura was 6,348 km of which 2,731 km was surfaced and the remaining unsurfaced by 1986-87.

Railways

Dharmanagar is linked by railway with Assam. Construction of railway line from Dharmanagar to Kumarghat in Tripura (distance 33 km) started in November 1979. Section from Dharmanagar to Pecharthal covering a distance of 22 km had been completed in March 1986.

Aviation

Agartala is the main airport connected with Calcutta and Guwahati. Agartala, Kailashahar and Kamalpur are also linked with Vayudoot service.

FESTIVALS

Of the many festivals, worship of fourteen gods particularly known as *Kharachi Puja* occupies the place of pride. It was during the reign of king

Trilochana that the temple of fourteen deities was set up. This temple is situated near old Agartala. *Ker and Garia Puja:* Ker Puja starts generally fifteen days after Kharachi Puja. It is said that this puja is performed for welfare of the state and its people. Tribals perform Garia Puja on the seventh day of the month of *Baishakh* (April). *Ganga Puja:* Another remarkable tribal festival is Ganga Puja. This Puja is held in March-April. About 4 to 5 tribal villages join together to perform the puja for praying to God to save them from any epidemic disease. *Durga Puja:* This puja is generally held during October and is one of the most popular festivals in Tripura. *Diwali:* This comes next to Durga Puja. On this occasion every year a big fair is held near Matabari in the temple of Tripura Sundari at Udaipur, a sub-divisional town of Tripura. *Paus-Sankranti Mela:* This mela at Tirtha Mukh in Amarpur sub-division attracts devotees from all parts of Tripura. *Ashokastami Fair:* This fair is held at Unakoti Tirtha in Kailashahar sub division every year in spring. *Other festivals: Doljatra* and *Rash-leela* are held with fun and fair besides *Jhulan Jatra, Janmastami* and *Ratha Jatra.* Muslims of Tripura celebrate their festivals with great enthusiasm. Lord Buddha's birthday is also celebrated here.

TOURIST CENTRES

Important tourist centres are Nirmahal, Sipahijala, Dumboor Lake, Kamalasagar, Jumpui Hill, Unakoti and Matabari.

GOVERNMENT

Governor: K.V. Raghunatha Reddy
Chief Minister: Sudhir Ranjan Mujumdar
Speaker: Jyotirmoy Nath
Chief Secretary: I.P. Gupta
Jurisdiction of High Court: Falls under jurisdiction of Guwahati High Court.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. North Tripura	3,872	5,41 248	Kailashahar
2. South Tripura	3,581	5,35,558	Udaipur
3. West Tripura	2,033	9,76,252	Agartala

UTTAR PRADESH

Area: 2,94,411 sq km
Population: 11,08,62,013
Capital: Lucknow
Principal languages: Hindi and Urdu

HISTORY AND GEOGRAPHY

History of Uttar Pradesh is very ancient and interesting. Although the state does not find mention in the *Rig Veda*, it is recognised in the later Vedic age as Brahmarshi Desa or Madhya Desa. Many of great sages of the Vedic times like Bharadwaja, Yajanavalkya, Vasishta, Vishwamitra and Valmiki appear to have flourished in UP. Many sacred books of the Aryans were also composed here. *Varsha Purana*, for example, is associated with Mathura.

Two great epics of India, *Ramayana* and *Mahabharata*, appear to have been inspired by UP. Ramayana features the royal family of Kosala and Mahabharata centres the royal family at Hastinapur, both in Uttar Pradesh.

In sixth century BC, UP was associated with two new religions, Jainism and Buddhism. Mahavira, founder of Jainism is said to have breathed his last at Doora in UP. It was at Saranath again in UP that great Buddha preached his first sermon and laid foundations of his order In the post-Buddhist period several centres in UP like Ayodhya, Prayag, Varanasi and Mathura became reputed centres of learning. Sri Sankaracharya, great Hindu reformer, established one of his *ashramas* at Badrinath in UP.

In medieval period UP passed under Muslim rule and led the way to a new synthesis of Hindu and Islamic cultures. Ramananda and his Muslim disciple Kabir, Tulsidas and Birbal and many other intellectuals contributed to the growth of Hindi and Urdu languages.

Uttar Pradesh preserved its intellectual leadership even under the British administration. The British combined Agra and Oudh into one province and called it United Provinces of Agra and Oudh. The name was shortened to United Provinces in 1935. After independence, in January 1950, United Provinces was renamed as Uttar Pradesh.

Uttar Pradesh is bounded by Tibet and Nepal in north, Himachal Pradesh in north-west, Haryana in west, Rajasthan in south-west, Madhya Pradesh in south and south-west and Bihar in east. Uttar Pradesh can be divided in three distinct regions: (i) northern mountains, (ii) southern hills and plateau and (iii) Gangetic plain.

AGRICULTURE

Agriculture is the main occupation of almost 78 per cent of the population. Uttar Pradesh is the largest producer of foodgrains, sugarcane and oilseeds.

During 1988-89, wheat production was 167.89 lakh mt, rice 64.77 lakh mt. The state is India's sugarcane bowl (930.54 lakh mt). There are 1,610 veterinary hospitals for cattle Forests in UP cover about 51,33,685 hectare. In order to eradicate poverty and dacoity in Chammbal valley, the state government commenced a programme to raclaim ravines by soil conservation, afforestation, pasture development, etc.

INDUSTRY

Uttar Pradesh is one of the principal sugar producing states in the country. While handloom industry is the largest cottage industry, cotton and woollen textiles, leather and footwear, distilleries and breweries, paper and chemicals, agricultural implements and glass products are some of the other flourishing industries.

Several public sector undertakings have been set up in the state. These are Bharat Heavy Electricals, Haridwar and Sultanpur, Indian Drug and Pharmaceuticals, Rishikesh: Diesel Locomotive Factory, Varanasi, fertiliser factories at Gorakhpur and Allahabad, Singrauli Coal Fields, Singrauli, Modern Bakery, Kanpur, Bharat Pumps and Compressor, Naini, Indian Telephone Industries, Naini, Rae Bareli and Gonda, Triveni Structurals Ltd., Naini, Deep Freeze Meat Plant, Tundla, Hindustan Aeronautics, Lucknow and Kanpur, Transformer Factory, Jhansi, Uptron Capacitor Ltd., Lucknow, Uptron Digital System Ltd., Lucknow and two cement factories at Chruk Kajrahat and Dalla. There are also Bharat Electronics Ltd., Ghaziabad, Lucknow Scooters India Ltd. and Tannery and Footwear Corporation of India Ltd., Kanpur. Artificial Limbs Manufacturing Corporation of India Ltd., Kanpur, Oil Refinery Mathura and Foundary Forge, Hardwar are other projects. Eleven spinning mills are running under state textiles corporation and a gas industry at Aonla, Bareilly.

Traditional handicrafts are silk fabrics, metalware, ,wood, ceramics, stone-work, dolls, artistic leather articles, papier mache, perfumery, bamboo products and musical instruments.

Minerals found in the state are limestone, dolomite, copper, gypsum, glass sand, marble, fire clay, coal, phosphorite, etc.

IRRIGATION AND POWER

The state has some of the oldest canal systems in the country, among which are the eastern Yamuna canal, the upper and lower Ganga canals, Agra, Betwa, Sarda, Dhassau and Ken canals. Important irrigation projects implemented since 1947 are Matatila dam, Obra hydel and thermal power stations, besides a number of small and medium irrigation projects. Yamuna and Tehri hydel projects, Gandak project, Sarju project, etc., are in progress.

Among major irrigation projects under construction are Tehri, Lakhwar Vyasi, Eastern Ganga canal, modernisation of upper Ganga canal, Narainpur Pump canal and Deokali Pump canal.

As on 1 April 1989 installed capacity of power in Uttar Pradesh was 5,376.35 mw. As many as 78,749 villages and 45,699 *harijan bastis* were electrified and 5,87,713 private tubewells were energised and 17,42,068 pumpsets operated by diesel up to March 1989.

TRANSPORT

Roads

There are 97,559 km of motorable roads of which 56,265 km are metalled and 13.210 km waterways (this excludes forest roads). Number of on-road vehicles in UP was 12,40,939 up to March 1989.

Railways

Lucknow is the main junction of northern network. Other important junctions are Agra, Kanpur, Allahabad, Moghalsarai, Tundla, Gorakhpur and Gonda.

Aviation

There are airports at Lucknow, Kanpur, Varanasi, Allahabad, Agra, Jhansi, Barielly, Hindon (Ghaziabad) and Gorakhpur, Sarsawa (Sharanpur), Pant Nagar (Naini Tal), Jolly Grant (Dehra Dun) and Fursatganj (Rae Bareli).

FESTIVALS

The biggest congregation, perhaps of the world, *Kumbh Mela* is held at Allahabad every twelfth year. Apart from Allahabad, *Kumbh Mela* is held at Haridwar also every sixth year. *Sanyasis* and devotees from all parts of India come to have a dip on that holy occasion. In Allahabad there is a *Magh Mela* every winter in January, when people come and settle there for a month to have a dip in the *Sangam* every morning. Among other fairs is *Jhoola Fair* of Mathura, Vrindavan and Ayodhya that lasts a fortnight when idols are placed in gold and silver *jhoolas* or cradles. A dip in the Ganga on *Kartik Poornmasi* is supposed to be the holiest and there are big congregations at Garhmukteswar, Soran, Rajghat, Kakora, Bithur, Kanpur Allahabad, Varanasi, Ayodhya and Haridwar. A very famous cattle fair is held at Bateswar in Agra district. Deva in Bara Banki district has become famous because of Muslim saint Warish Shah.

Besides important festivals of Hindus, Muslims, etc., are widely celebrated in the state.

TOURIST CENTRES

Uttar Pradesh has varied attractions for all kinds of tourists. Besides ancient places of pilgrimage like Varanasi, Vindhyachal, Ayodhya, Chitrakoot, Prayag, Bageshwar, Jageshwar, Pauri, Naimisharanya, Mathura, Vrindavan, Haridwar, Rishikesh, Badrinath, Kedarnath, Gangotri, Yamnotri, Nanakmatta, Hemkund Sahib, Deva Sharief Pearankliyar, Dargah of Shekh Saleam Chishti in Fatehpur, Sarnath, Shravasti, Kushinagar, Sankisa, Kampil, Piprahva and Kaushambi, places like Agra, Ayodhaya, Sarnath, Varanasi, Lucknow, Mathura, Prayag, Jhansi, Gorakhpur, Jaunpur, Kanauj, Mahoba, Devgarh, Bithur and Vindhyachal have rich treasures of Hindu and Islamic architecture and culture.

Uttar Pradesh has a treasure of magnificent scenic beauty spots like Sangam in Allahabad, Hindon (Ghaziabad) and Tanda waterfall in Mirzapur, Okhla, Dehra Dun, Mussoorie, Chakrata, Naini Tal, Ranikhet, Almora, Kausani, Pindari glacier, Corbet National Park and Dhuwan sanctuary.

GOVERNMENT

Governor: B. Satyanarayan Reddy
Chief Minister: Mulayam Singh Yadav

Speaker: Hari Krishan Srivastav
Chief Secretary: R.K. Bhargava
Chief Justice: Justice B.T. Jeevan Reddy
Jurisdiction of High Court: Uttar Pradesh.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Agra	4,805	28,52,942	Agra
2. Aligarh	5,019	25,74,925	Aligarh
3. Allahabad	7,261	37,97,033	Allahabad
4. Almora	5,385	7,57,373	Almora
5. Azamgarh	5,740	35,44,130	Azamgarh
6 Bahraich	6,877	22,16,245	Bahraich
7 Ballia	3,189	19,45,376	Ballia
8. Banda	7,624	15,33,990	Banda
9. Bara Banki	4,401	19,92,074	Bara Banki
10. Bareilly	4,120	22,73,030	Bareilly
11. Basti	7,228	35,78,069	Basti
12 Bijnor	4,848	19,39,261	Bijnor
13. Budaun	5,168	19,71,946	Budaun
14. Bulandshahr	4,352	23,58,270	Bulandshahr
15. Chamoli	9,125	3,64,346	Chamoli
16. Dehra Dun	3,088	7,61.668	Dehra Dun
17 Deoria	5,445	34,96,564	Deoria
18. Etah	4,446	18,58,692	Etah
19. Etawah	4,326	17,42,651	Etawah
20. Faizabad	4,511	23,82,515	Faizabad
21. Farrukhabad	4,274	19,49,137	Fatehgarh
22 Fatehpur	4,152	15,72,421	Fatehpur
23 Garhwal	5,440	6,37,877	Pauri
24. Ghaziabad	2,590	18,43,130	Ghaziabad
25. Ghazipur	3,337	19,44,669	Ghazipur
26. Gonda	7,352	28,34,562	Gonda
27. Gorakhpur	6,272	37,95,701	Gorakhpur
28. Hamirpur	7,165	11,94,168	Hamirpur
29. Hardoi	5,986	22,74,929	Hardoi
30 Jalaun	4,565	9,86,238	Orai
31. Jaunpur	4,038	25,32,734	Jaunpur
32. Jhansi	5,024	11,37,031	Jhansi
33. Kanpur (Rural)	5,848.8	20,08,731	Kanpur
34. Kanpur (Urban)	337.2	17,33,492	Kanpur
35. Kheri	7,680	19,52,680	Kheri
36. Lalitpur	5,039	5,77,648	Lalitpur
37. Lucknow	2,528	20,14,574	Lucknow
38. Mainpuri	4,343	17,26,202	Mainpuri
39. Mathura	3,811	15,60,447	Mathura
40. Meerut	3,911	27,67,246	Meerut
41. Mirzapur	11,310	20,39,149	Mirzapur
42. Moradabad	5,967	31,49,406	Moradabad
43. Muzaffarnagar	4,176	22,74,487	Muzaffarnagar
44. Naini Tal	6,794	11,36,523	Naini Tal
45. Pilibhit	3,499	10,08,312	Pilibhit

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
46 Pithoragarh	8,856	4,89,267	Pithoragarh
47 Pratapgarh	3,717	18,01,049	Pratapgarh
48 Rae Bareli	4,609	18,86,940	Rae Bareli
49 Rampur	2,367	11,78,621	Rampur
50. Saharanpur	5,595	26,73,561	Saharanpur
51 Shahjahanpur	4,575	16,47,664	Shahjahanpur
52 Sitapur	5,743	23,37,284	Sitapur
53 Sultanpur	4,436	20,42,778	Sultanpur
54 Tehri Garhwal	4,421	4,97,709	Narendranagar
55. Unnao	4,558	18,22,591	Unnao
56 Uttarkashi	8,016	1,90,948	Uttarkashi
57 Varanasi	5,091	37,01,006	Varanasi
58. Haridwar[1]	—	—	Haridwar
59 Maiu[1]	—	—	Maiu
60 Sidhardhnagar[1]	—	—	Sidhardhnagar
61 Firozabad[1]	—	—	Firozabad
62. Durahat[1]	—	—	Kotdwar
63 Soubhdra[1]			

1 Area and population figures are not available

WEST BENGAL

Area: 88,752 sq km
Population: 5,45,80,647
Capital: Calcutta
Principle language: Bengali

HISTORY AND GEOGRAPHY

Bengal finds a coveted place even in pre-historic times. At the time of Alexander's invasion a powerful kingdom called Gangaridai ruled over Bengal. Ascendancy of the Guptas and the Mauryas had somewhat little effect on Bengal. Later *Sasanka* became King of Bengal and is said to have played important role in north-eastern India in the early half of seventh century. He was succeeded by Gopala who founded the Pala dynasty which ruled for centuries and had created a huge empire. The Palas were followed by the Sena dynasty which was ended by Muslim rulers from Delhi. Bengal was ruled by various Muslim rulers and governors till the Mughal period in sixteenth century.

After the Mughals history of modern Bengal begins with the advent of European and English trading companies. Battle of Plassey in 1757 changed the course of history when the English first gained a strong foothold in Bengal and India. In 1905 it was partitioned to achieve some political returns but people's growing movement in the auspices of Congress led to the reunion in 1911. This triggered off hectic movement for freedom which culminated with independence in 1947 and partition.

After 1947, merger of native settlements began which ended with its final reorganisation in 1956, when some neighbouring Bengali speaking areas too were transferred to West Bengal.

Land frontiers of the state touch Bangladesh in east and are separated from Nepal in west. Bhutan lies in north-east while Sikkim is in north. On west and south-west are the states of Bihar and Orissa respectively. Bay of Bengal washes its southern frontiers.

AGRICULTURE

Agriculture contributes almost 50 per cent of the state's income and between 70 and 80 per cent of population is directly or indirectly involved in agriculture. Total irrigated area stands nearly 40 per cent of the total cropped area. Despite weather constraints, the state occupied a leading position (*i.e.,* 16.4 per cent of the country's total production) among 17 principal rice growing states in 1987-88. Even with limited irrigation facilities productivity of rice in the state since 1980-81 till 1986-87 was above the national average. Area under rice cultivation in 1987-88 was over 54 lakh hectare. The state accounted for 54.3 per cent of the country's jute (including mesta) in 1987-88 and 22.6 per cent of tea production. Other important crops are potatoes, oilseeds, betelvine, tobacco, wheat, barley and maize.

INDUSTRY AND MINERALS

West Bengal was one of the major industial states in the country with 8,064 registered working factories (excluding defence factories) in 1986. Number of registered small scale industrial units up to March 1988 was 2,79,769.

In addition to one alloy steel plant at Durgapur, there are two steel plants one, again, at Durgapur and the other at Burnpur. Major industries among others, are engineering, automobiles, chemicals, pharmaceuticals, aluminium, ceramics, jute, cotton textiles, tea, paper, glass, leather, footwear, bonemeal, bicycle, dairy and poultry, and timber processing. Central public sector undertakings including locomotive, cable, fertiliser, ship building and ordnance are located in the state. The state government has also set up some public sector undertakings like tea, sugar, chemicals, ceramic, electronics, leather, pharmaceuticals, petro-chemicals and phyto-chemicals, agro-textile, sugarbeet, fruit and vegetable processing, electro-medical and other allied industries (including mineral development).

Total number of growth centres have gone up to 12 with the inclusion of Madhukunda in Purulia district, Debgram and Ramnagar (Jalpaiguri district), Bagdogra (Darjiling district), Bishnupur (on-going Bankura district), Cooch Behar (on-going), Maldah (completed), Uluberia (Haora district), Free Trade Zone at Falta (South 24-Parganas district) and Kalyani--Phase II (Nadia district); besides establishment of new industrial estates at Asansol, Durgapur, Haldia, Kharagpur, Santaldih, Siliguri, Farakka, Haora, Budge Budge and Rishra.

Coal and China clay are two important minerals found in large quantity.

IRRIGATION AND POWER

Important multi-purpose irrigation and power schemes implemented since 1947 include, among others, barrage and irrigation system of Damodar

Valley Project, Mayurakshi Irrigation Project and Kangsabati Project. Works of Teesta Barrage (including new canal system of Teesta-Mahananda Link canal in Jalpaiguri district and Mahananda Main canal in Darjiling district) have been completed. Subarnarekha Barrage Project (Midnapore district) has been set off. Twenty on-going schemes of medium irrigation programme are being continued and by Seventh Plan period it was expected that 51 per cent of ultimate irrigation potential of 38 lakh hectare would be achieved. Hinlow irrigation scheme in Birbhum, Saharajore scheme in Bankura, Taragoria and Turga irrigation schemes in Purulia have been completed. Foundation stone of Bakreswar Thermal Power Project has been laid and infrastructural works are in progress. Power supply in West Bengal is currently done by West Bengal State Electricity Board (WBSEB), West Bengal Power Development Corporation (WBPDC), Calcutta Electric Supply Corporation (CESC) and Durgapur Project Limited (DPL).

In 1987-88 total generation capacity of these agencies was 3,590 mw by WBSEB, 2,298 mw by CESC, 1,037 mw by DPL and 1,932 mw by WBPDC. In addition, WBSEB has gas turbines of 100 mw capacity, hydel units of 41 mw capacity and diesel units of 15.5 mw capacity. Total generating capacity from different sources in the state (excluding DVC system) was 8,893 mw in 1987-88 against 8,637 mw in the preceding year.

Total installed (derated) capacity of electricity in West Bengal (including DVC and NTPC) in 1988-89 stood at 3,616 mw (excluding 41 mw of CESC southern generating station) as against 1,631 mw in 1987-88.

In February 1989, total number of villages electrified was 24,772 out of the total 38,074. Pumpsets energised were 60,401 during 1987-88.

TRANSPORT

Roads

As in March 1984 length of roads was 57,539 km both surfaced and unsurfaced including 1,630 km of national highways.

Railways

Length of rail route in the state was nearly 3,867.13 km in 1987-88. Main rail junctions are Haora, Asansol, Kharagpur and New Jalpaiguri.

Aviation

Calcutta is an international airport. Other airports are Belurghat, Cooch Behar, Malda and Bagdogra.

Ports

Calcutta is the most important port followed by Haldia.

FESTIVALS

Durga Puja is the most important festival along with *Kali Puja* or *Diwali* besides *Vasant Panchami, Lakshmi Puja, Holi, Shivaratri, Janmashtami, Id-ul-Zuha, Id-ul-Fitr, etc.*

TOURIST CENTRES

Important tourist centres are, among others, Calcutta, Digha (Midnapore) Bakkhali Sea Resort and Sundarbans (South 24-Parganas), Bandel, Tarkeshwar, Kamarpukur, Hugli and Gadiara (Hugli), Santiniketan and Bakreswar (Birbhum), Durgapur (Barddhaman), Mukutmanipur and Vishnupur (Bankura), Ajodhya Hills (Purulia), Murshidabad, Gour and Pandua (Maldah), Darjiling, Mirik, Kalimpong, Sandukpa, Falut and Kurseong (Darjiling) and Jaldapara and Dooars (Jalpaiguri).

GOVERNMENT

Governor: Prof. S. Nurul Hasan
Chief Minister: Jyoti Basu
Speaker: H.A. Halim
Chief Secretary: T.C. Dutt
Chief Justice: Justice P.D. Desai
Jurisdiction of High Court: West Bengal and Andaman and Nicobar Islands.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. Bankura	6,882	23,74,815	Bankura
2 Barddhaman	7,024	48,35,388	Barddhaman
3. Birbhum	4,545	20,95,829	Suri
4. Calcutta[1]	187.33	41,25,006	Calcutta
5. Darjiling	3,149	10,24,269	Darjiling
6. Haora	1,467	29,66,861	Haora
7. Hugli	6,227	35,57,306	Chinsurah
8. Jalpaiguri	6.227	22,14,871	Jalpaiguri
9. Cooch Behar	3,387	12,71,643	Cooch Behar
10. Maldah	3,733	20,31,871	English Bazar
11. Medinipur	14,081	67,42,796	Medinipur
12. Murshidabad	5,324	36,97,552	Berhampore
13. Nadia	3,927	29,64,253	Krishnanagar
14. North 24-Parganas[2]	14,052.67	99,19,439	Alipore
15. Purulia	6,259	18,53,801	Purulia
16. South 24-Parganas[2]	—	—	Barasat
17. West Dinajpur	5,358	20,04,947	Belurghat

1. Includes three municipalities (Garden Reach with an area of 12.05 sq km, Suburban with 30.38 sq km and Jadavpur with 40 sq km.)
2. Comparable data not available. Given data is for both the districts together.

ANDAMAN AND NICOBAR ISLANDS

Area: 8,249 sq km	*Population:* 1,88,741
Capital: Port Blair	*Principal languages:* Hindi, Nicobarese, Malayalam, Bengali, Tamil and Telugu

HISTORY AND GEOGRAPHY

Original inhabitants live in forests by hunting and fishing. They are of a small Negrito type and their civilisation is about that of the Stone Age. Main aboriginal tribes are Andamanese, Onges, Jarawas and Sentinelese. Besides, some displaced families from East Pakistan (now Bangladesh) had settled in the Islands in 1967.

Japanese forces occupied the Andaman and Nicobar Islands in 1942. The British reoccupied these Islands in 1945. From 1857 to 1942 the Islands were used by the British as a penal settlement for life and long term convicts, but penal settlement was abolished on re-occupation in 1945.

The Andaman Islands lie in the Bay of Bengal, 193 km from Cape Negaris in Burma, 1,255 km from Calcutta and 1,190 km from Madras. Five islands grouped together are called the Great Andamans and to south is the island of Little Andaman. There are some 204 islets, the two principal groups being Ritchie Archipelago and Labyrinth Islands. The Nicobar Islands are situated to south of the Andamans, 121 km from Little Andaman. There are 19 islands, 7 uninhabited; chief islands being Great Nicobar, Camotra with Noncowire and Car Nicobar.

AGRICULTURE

Paddy is the main food crop cultivated in Andaman group of islands whereas coconut and arecanut are main cash crops of Nicobar group of islands. Other crops such as sugarcane, red oil palm, fruits and vegetables are also being cultivated in these islands.

Forests cover 7,130 sq km of the total area of the Islands. All types of forests are found in the Islands such as giant evergreens, hill top evergreens, moist deciduous, littoral and sub-mountain swamp forests. A large variety of timber is found in the Andaman group of islands. Most valuable timber is *padauk* and *gurjan*. These species are not found in Nicobars.

Water around the Islands is rich in fish. Unlike mainland, there is no traditional fishing community in the Islands. An area of 450 hectare has been identified as suitable for brackish water acqua culture.

INDUSTRY

There are 756 small scale village and handicraft industrial units besides a few large-sized industrial units. Large scale units are wood-based at Haddo and Chatham in Port Blair, Bamboofiat in South Andaman, Bakultala and

Long Island in Middle Andaman. The Andaman and Nicobar Integrated Development Corporation is being put into operation.

Products comprise sawn timber, commercial plywood, match splints and veneers. Small scale and handicraft units are engaged in shell crafts, furniture making, bakery products, rice milling, wheat grinding, oilseeds crushing, etc. Nine industrial training centres impart training to local artisans and tribals in trades like cane and bamboo crafts, wood crafts, shell crafts and tailoring. Most of these centres are training-cum-production centres.

IRRIGATION AND POWER

As there is no perennial river, large scale irrigation projects are not possible in the Islands. Minor irrigation schemes like tapping of rain water and utilising underground water resources are being taken up.

There are more than 20 power houses in the Islands. Phoenix Bay power house is the main source of power to Port Blair and nearby areas. Cent per cent rural electrification has been achieved in the territory.

TRANSPORT

The Islands are accessible both by air and sea. Indian Airlines is operating four flights a week between Calcutta to Port Blair and also from Madras to Port Blair. Four ships are sailing between Port Blair and Calcutta/Madras/ Vishakhapatnam with an interval of about ten days in respect of first two ports and once in three months in respect of last one. Marine and Shipping Department keeps a good fleet of vessels to cater to the needs of inter-islands communications. Length of roads within the Islands is 733 km including 48 km of unsurfaced roads.

TOURIST CENTRES

Important tourist centres are Cellular Jail National Memorial, anthropological and marine museums, Chatham Saw Mill, Carbyn's Cove Beach, Chinque Islands, Ross Islands, Wandoor, Chidyatapu, Madhuban and Mount Harriet.

GOVERNMENT

Lt. Governor: Lt. Gen. (Retd) R.S. Dayal
Chief Secretary: Gorakh Ram
Jurisdiction of High Court: Falls under jurisdiction of Calcutta High Court.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1. **Andamans**	6,408	1,58,287	Port Blair
2. **Nicobars**	1,841	30,454	Car Nicobar

CHANDIGARH

Area: 114 sq km	*Population:* 4,51,610
Capital: Chandigarh	*Principal languages:* Hindi and Punjabi

HISTORY AND GEOGRAPHY

Chandigarh and the area surrounding it were constituted as a union territory on 1 November 1966. It serves as the joint capital of both Punjab and Haryana states. It is bounded on north and west by Punjab and east and south by Haryana.

AGRICULTURE

At present, cultivable land is about 2,819 hectare in the union territory of Chandigarh. Irrigated area is about 2,610 hectare. Wheat, maize and paddy are major crops.

Forests cover 24.15 per cent of the area.

INDUSTRY

There are 15 large and medium scale units in Chandigarh of which two are public undertakings. More than 2,603 units are registered under small scale industrial sector, which provides employment to nearly 25,000 persons.

Large and medium scale units produce hosiery and knitting machine needles, wooltops, electric meters, cycle, free wheels and rims, antibiotics, soft drinks, card boards etc. Small scale units are engaged in production of steel fabrication, door fittings, spun pipes, sanitary fittings, electronic components and equipment, cutlery, machine screws, bifurcated rivets, hardware, electrical appliances including washing machines, plastic shoes and other items, cotton ginning machine parts, utensils, paints and varnishes, radios and transistors, auto cables and domestic cables, thermometers, wire drawing and wire products, soap and chemicals, cement pipes and tiles, *dal* and oil mills, cycle tubes and tyres, electrical control switches and accessories, tractor parts, ropeways, helmets, sodium silicate, mining machinery parts, synthetic *newar,* textile weaving bandages, ayurvedic drugs, electric chokes, lime, nuts, truck and three wheeler body makers, blocks, designs, chaff cutter blades, furniture, etc.

POWER

Chandigarh gets 3.5 per cent share of the total power generation from Bhakra complex. A standby arrangement to produce electricity to the extent of two megawatts is also available in case of major shutdowns.

All the 22 villages have been electrified and provided with street light.

TRANSPORT

Length of national highways is 24 km. Chandigarh is connected by train and air as well.

TOURIST CENTRES

Important centres are Rose Garden, Rock Garden, Smriti Upavana, Shanti Kunj, Sukhna Lake, Museum and Art Gallery, Capital Complex, National Gallery of Portraits.

GOVERNMENT

Administrator: Virendra Verma
Adviser to the Administrator: Ashok Pradhan
Jurisdiction of High Court: Falls under jurisdiction of Punjab and Haryana High Court.

DADRA AND NAGAR HAVELI

Area: 491 sq km	*Population:* 1,03,676
Capital: Silvassa	*Principal languages:* Bhilli, Bhilodi, Gujarati and Hindi

HISTORY AND GEOGRAPHY

There were prolonged skirmishes between the Portuguese and the Marathas on the sea and later on the basis of a treaty concluded between the Portuguese and Maratha government on 17 December 1779, Maratha government assigned the aggregated revenue of Rs 12,000 in few villages of this territory to the Portuguese on compensation and ensured friendship. The Portuguese started ruling this territory until its liberation by people themslves on 2 August 1954. After the liberation of this territory by people, administration was carried on for sometime by an Administrator appointed by people themselves. The territory was merged with the Indian Union and became a part and parcel of the Indian Union with effect from 11 August, 1961. Since then this territory is being administered by the Government of India as a union territory through the Administrator.

Since liberation of the territory from the Portuguese yoke *Varishtha Panchayat* was working as advisory body of the administration. But the same was dissolved on 2 August 1989 and announced as a *Pradesh Council* for Dadra and Nagar Haveli.

Dadra and Nagar Haveli is a small union territory with an area of 491 sq km. It is surrounded by Gujarat and Maharashtra. The territory consists of two pockets, namely, Dadra and Nagar Haveli. There were 72 villages of which one village Kothar has completely submerged and five others are partly submerged due to construction of Damanganga irrigation project which is a joint venture of Dadra and Nagar Haveli, Daman and Diu and Gujarat. The nearest railway station is at Vapi which is 18 km from Silvassa, the headquarters of this union territory. Silvassa is about 187 km from Bombay.

AGRICULTURE

Dadra and Nagar Haveli is a predominantly rural and tribal area. Total geographical area is 491 sq km of which about 24,000 hectare is under cultivation. Major crop is paddy (*kharif*). *Nagali* and other hill-millets are the second important crops of the area. Sugarcane is coming up slowly. A cooperative sugar factory is likely to start this year. Mango, *chiku*, *lichi* and apple are also produced.

Forests cover 40 per cent of the total geographical area, Tribals who form 78 per cent of total population lean heavily on forests. They have been given exclusive right for collection of minor forest producc free of cost.

INDUSTRY

Prior to 1965-66 there was no industrial unit existing in this union territory except a few craftsmen who used to work traditionally for manufacture of pots, leather items *viz.*, *chappals*, shoes, etc., and some other items of bamboo. Skill was available only with limited persons in some villages. Industrial development was started on a low key during 1967-68 with the establishment of industrial estate under cooperative sector by Danudyog Sahakari Sangh Ltd. Thereafter, three government industrial estates have been developed at Silvassa, Masat and Khadoli. By October 1989 there were 302 industries functioning which include cottage, village, and small scale industries and 60 medium scale industries in textiles, engineering, plastics, electronics, chemicals, pharmaceuticals, etc. These industries employ more than 7,000 persons and produce goods worth over Rs 200 crore. These industries are given incentives like 25 per cent cash subsidy on assets, exemption from sales tax for 15 years, power subsidy and concessional finance by financial institutions and banks. Being a backward area no octroi duty, etc., is charged.

IRRIGATION AND POWER

Prior to liberation of the territory, there was no irrigation facility and cultivators had to fully depend upon rainfall. Later, adequate steps were taken and 37 lift irrigation schemes completed at various places in the territory. A multiple irrigation project Damanganga is also in the final stage. On commissioning of command area development works, more area will be brought under multiple cropping.

Power is purchased from Gujarat State Electricity Board. The territory is fully electrified.

TRANSPOST

The union territory does not have its own road transport system. It avails of Gujarat and Maharashtra State Transport systems. Total road length is about 341 km of which 326 km (96 per cent) is surfaced. Sixty (83 per cent) of the villages are connected with all-weather roads. Railway route from Bombay to Ahmadabad links Vapi also. Bombay is the nearest airport.

FESTIVALS

Normaly all festivals of Hindus, Muslims and Christians are celebrated in the territory. However, tribal celebration differs. *Varli* and *Kokna* tribals celebrate *Diwali* in the name of *Barash*. *Akha Trij* is celebrated by Kokna tribes where ladies are main participants. *Divaso* is celebrated by *Dhodia* and Varli tribes. *Raksha Bandhan* is celebrated by Dhodias. Other festivals are *Bhawada* amongst Varli, Kokna and *Koli* tribes; *Khali Puja* by all tribes after havesting of crops and *Gram Devi* before harvesting of crops.

GOVERNMENT

Administrator : Khurshed Alam Khan
Chief Secretary : K.M. Sahni
Jurisdiction of High Court: Falls under jurisdiction of Bombay High Court.

DAMAN AND DIU

Area: 112 sq km	*Population:* 78,981
Capital: Daman	*Principal language:* Gujarati

HISTORY AND GEOGRAPHY

Daman and Diu along with Goa was a colony held by the Portuguese even after independence. In 1961, it was made an integral part of India. It was part of the estwhile union territory of Goa, Daman and Diu. After conferring statehood on Goa on 30 May 1987, Daman and Diu was made a separate union territory.

Daman lies about 160 km north of Bombay. It is bounded on north by the Bhagwan river, on east by Gujarat, the Kalem river on south and on west by the Gulf of Cambay. Diu is an island connected by a bridge near Tad village.

AGRICULTURE AND IRRIGATION

For increasing agricultural production, area under double cropping is proposed to be increased by raising irrigation potential both through minor irrigation schemes as well as tapping surface water through medium irrigation projects on rivers. Important field and garden crops are paddy, *ragi, bajra, jowar*, groundnut, pulses and beans, wheat, banana, sapota and mango.

There is no major forest in the territory.

INDUSTRY AND POWER

All villages have been electrified. One sub-station of 2x5 mva 66/11 kva in Diu was commissioned in Daman. In view of additonal demands on account of growth in industries and normal development works, another sub-station of 2x10 mva 66/11 kva is under construction.

TRANSPORT

There is no railway link with Daman and Diu. Vayudoot connects Daman with main air stations in western region.

TOURIST CENTRES

Important tourist attractions are Devka beach (Daman), irrigation pond-cum-lake in Kachigam (Daman), Nani garden (Daman), Moti Fish Aquarium (Daman), Summer House near Jallander beach (Diu), Nagor beach, Children's park at Goghla (Diu), garden and park in Diu, etc.

GOVERNMENT

With the delinking of Daman and Diu from the erstwhile union territory of Goa, Daman and Diu from 30 May 1987, a new union territory of Daman and Diu has been formed and *Pradesh Council* consituted with Administrator as the head of the government.

Administrator: Khurshid Alam Khan
Chief Secretary: K.M. Sahni

Presently, there is a common High Court for Maharashtra and Goa and union territories of Dadra and Nagar Haveli and Daman and Diu.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquaarters
1. Daman	72	48,560	Daman
2. Diu	40	30,421	Daman

DELHI

Area: 1,483 sq km	*Population:* 62,20,406
Capital: Delhi	*Principal languages:* Hindi, Punjabi and Urdu

HISTORY AND GEOGRAPHY

Delhi finds prominent reference in pre-historic times, right from epic *Mahabharata*. Later Delhi went on passing from one kingdom to another beginning with the Mauryans, Guptas, Palas of Central India, finally to the Chauhans in 12th century. After them, it was the Afghan and the Muslim invaders for about four centuries, finally to the Mughals in 16th century. In the later half of 18th century and early 19th century, the British rule engulfed Delhi and in 1911 it was made capital of the British India. In the freedom struggle too it was in the centre of all activities. After 1947 it became capital of India and was made a union territory in 1956.

Lying in northern part of the country Delhi is surrounded by Haryana on all sides except east where Uttar Pradesh touches it.

AGRICULTURE

Total cropped area had decreased from 91,757 hectare in 1984-85 to 81,377 hectare in 1986-87. Wheat, maize, *bajra* and *jowar* are major food crops. Emphasis has now shifted from food crops to vegetable and fruit crops, dairy, poultry farming, etc In vegetable production, Delhi has made tremendous progress. Average production in respect of wheat has been steadily going up and today it is the second best in the country.

INDUSTRY

Modern city of Delhi and New Delhi is not only the largest commercial centre in northern India but also an important industrial centre. Since 1947 a large number of industrial concerns have been established. These include factories for manufacture of razor blades, sports goods, radio and television parts, bicycles and parts, plastic and PVC goods including footwear, textiles, chemcials, fertilisers, medicines, hosiery, leather goods, soft drinks, hand and machine tools. There is also metal forging, casting, galvanising and electro-plating, printing and warehousing. Number of industrial units functioning was about 77,000 in 1988-89 and average number of workers employed was 6.93 lakh. Production was worth Rs 4,050 crore and investment about Rs 1,500 crore.

IRRIGATION AND POWER

Irrigation sources are canals, tubewells and effluents from sewage treatment plants. More than 75 per cent of cropped area is covered under assured irrigation. Special attention is paid to providing irrigation facilities to *harijan*/marginal farmers through 265 state tubewells.

Power generation aspect is being taken care of by two power stations of Delhi Electric Supply Undertaking at Indraprastha Estate and Rajghat. Remaining requirement is being met from Badarpur, Varasuit and national grid.

Non-conventional and energy conservational programme was started in Delhi during 1983. Initially it was started in Alipur block and later in all the five rural blocks and urban areas during 1984-85. The kind of activities that have been undertaken in rural and urban areas are installation of bio-gas plants and windmills for pumping water, solar cookers and wood stoves, installation of domestic/institutional solar water-heating systems, setting up of fixed *chulhas* in rural areas and energy conservational items.

TRANSPORT

Delhi is connected by road, rail and air with all states in India. It has three airports - Indira Gandhi international airport for international flights; Palam airport for national air services and Safdarjung airport for training purposes.

There are over 15 lakh registered vehicles with computerised records, besides system of one-time payment of road-tax for private vehicles registered in Delhi and poloroid driving licences introduced.

FESTIVALS

Being a cosmopolitan city all major festivals of India are celebrated here.

TOURIST CENTRES

Important tourist centres are Lal Qila, Jama Masjid, Qutab Minar, Jantar Mantar, India Gate, Birla Mandir, Humayun's Tomb, etc.

GOVERNMENT

Lt. Governor: Air Chief Marshal (Retd) Arjan Singh
Chief Secretary: V.K. Kapur
Chief Justice: Rabindra Nath Pyne
Jurisdiction of High Court: Delhi.

LAKSHADWEEP

Area: 32 sq km	*Population:* 40,249
Capital: Kavaratti	*Principal language:* Malayalam

HISTORY AND GEOGRAPHY

Not much is known of the early history of these islands. The islands supposed to have been inhabited first are Amini, Kalpeni, Andrott, Kavaratti and Agatti. It was earlier believed that the islanders were originally Hindus and converted to Islam under the influence of Arab traders sometime in 14th century. But archaeological evidence recently unearthed indicates that there were Buddhist settlements around sixth or seventh centuries and the earliest Muslim converts or settlers predate the year 139 AH of the Hijra year (eighth century) of which date gravestones have recently been discovered in Agatti. This would tend to bear out the local tradition that Islam was brought to the island by Arab saint Ubaidullah in 41 AH.

Probably independent till 16th century the islanders were driven to seek the assistance of Raja of Chirakkal to help rid them of the Portuguese attempt to establish domination. This enabled him to establish his authority and later the islands were transferred in *jagir* to Ali Raja, head of Moplah community in Cannanore, who later became an independent ruler himself. The Arakkal rule was not popular and in 1787 Tipu Sultan acceded to the petitions of northern islanders to annex these islands. On the fall of Tipu Sultan the islands were passed to East India Company but continued to be ruled *de facto* by rulers of Cannanore till their ultimate annexation by the British early in 20th century. In 1956 the islands were constituted into a single union territory and since then have been directly administered by Union government through an Administrator. The Laccadives, Minicoy and Amindivi group of islands were renamed as Lakshadweep in 1973.

Lakshadweep, a group of coral islands, consists of 12 atolls, three reefs and submerged sand banks. Of the 36 islands only 10 are inhabited. These lie scattered in the Arabian Sea about 280 to 480 km off Kerala coast between 8° and 12° 3' north latitude and 71° and 74° east longitude.

AGRICULTURE

Coconut is the only major crop with a turnover of Rs 3.4 crore in 1988-89. Area under cultivation was about 2,785 hectare. There are dairies at Kavaratti and Minicoy, and poultry farms at Kavaratti, Andrott, Kalpeni, Minicoy, Agatti, Kadmat and Kiltan.

INDUSTRY

Coconut fibre extraction and conversion of its fibre products are the main industry in the islands. Fishing is another major activity. The sea around the islands is highly productive. Number of mechanised fishing boats increased to 366 by March 1989 which are operated from both inhabited and uninhabited islands. The islands stand first in the country in per capita availability of fish.

TRANSPORT

Three ships MV *Tipu Sultan*, MV *Bharat Seema* and MV *Dweep Setu* carry passengers to and from the islands to Cochin, Mangalore and Beypore ports. MV *Amindivi* carries cargo. Besides there is an island-to-island and island-to-mainland helicopter service. Vayudoot links Agatti with the mainland thrice a week.

TOURIST CENTRES

Tourism is developing into an important industry. During 1988-89, 2,451 tourists visited the islands of which 583 were foreigners.

GOVERNMENT

Administrator : Pradeep Singh
Jurisdiction of High Court : Falls under jurisdiction of Kerala High Court.

PONDICHERRY

Area: 492 sq km	*Population:* 6,04,471
Capital: Pondicherry	*Principal languages:* Tamil and French
	Official Languages: Tamil, Telugu, Malayalam, English and French

HISTORY AND GEOGRAPHY

In the early 16th century Pondicherry was known as Puducheira. In 1666, the French established their main trading centre at Surat. In the seventies of the 17th century, they slowly concentrated on Pondicherry. During the years that followed control over Pondicherry swang between the French and the English. Finally, the French continued their settlement in Pondicherry from 1816 till the merger of it with the rest of independent India.

Present Pondicherry is constituted of the erstwhile French India-Karaikal, Mahe and Yanam, apart from Pondicherry. Karaikal is geographically inside Thanjavur district of Tamil Nadu. Mahe is within Kerala situated on the mouth of the Mahe river. Yanam is in the East Godavari district of Andhra Pradesh.

AGRICULTURE

Nearly 45 per cent of population in the territory is engaged in agriculture and allied pursuits. Ninety per cent of the cultivated area is irrigated.

Besides the main rice food crop, other minor food crops *viz., ragi, bajra* and pulses are grown in the union territory. Sugarcane, groundnut and cotton are principal cash crops. Pondicherry tops the list of states in the sphere of fertiliser consumption per unit area. Average per hectare consumption of nitrogen, phosphorous and potash put together is 331.55 kg.

In 1988-89, only 24,560 hectare was covered as against the targetted area of 27,000 hectare. Foodgrains production was 1,07,100 mt of which 93,901 mt was rice and oilseeds production 15,240 mt. Production of cotton and sugarcane was 11,979 bales of 180 kg and 3,17,015 mt respectively.

INDUSTRY

There are at present (31 August 1989) 13 large and 42 medium scale industries manufacturing consumer goods such as textiles, sugar, cotton yarn, paper, spirits and beer, potassium chlorate, rice bran oil, auto parts, soap, amino acid, disposable syringes, red mud sheets, nylon monofilaments, hard gelatine capsules, etc. In additon, there are 3,322 small scale industries. All these industries together employ 38,200 persons.

IRRIGATION AND POWER

Irrigation in Pondicherry is mainly through tanks. There are 86 tanks. In Karaikal region irrigation system depends on Kaveri water and network of canals.

There is no generation of power in the territory. Rural electrification was completed by 1972 itself. In view of rapid growth of industrialisation, there has been a tremendous increase in the demand of power. During 1988-89, total demand of power was nearly 88 mw while per capita consumption was 517 units. To provide stable supply, a 230/110 kv sub-station has been commissioned with five new EHV sub-stations at load centres. The 110/11 kv sub-station at Mahe in Kerala was commissioned during October 1989 to overcome the chronic low voltage condition of that region. Establishment of EHT sub-stations at Kalapet and Yanam is in progress.

Every year about 6,000 new services are being added to the distribution system. Priority is given for energisation of agricultural pumpsets and 'One Hut One Bulb' services.

TRANSPORT

Roads

Total length of roads in the territory is 2,371 km including 1,218 km surfaced and 1,153 km unsurfaced.

Railways

Pondicherry is connected to Villupuram junction.

Aviation

The nearest airport is Madras. Vayudoot service connects Pondicherry with Madras.

TOURIST CENTRES

Pondicherry is a living monument of Franch culture in India. Among places of interest are Governor's Palace, beach Auroville, Sri Aurobindo *ashram*, Bharathiar museum, Barathidasan museum, French institute, JIPMER, Indian Institute of Indology, Romain Rolland library, botancial garden, Pondicherry museum, Alliance Francaise, Ousteri Lake, Joan of Arc square, War memorial, temples and churches and boating in the back-water at Chunnambar.

GOVERNMENT

Governor: Smt. Chandravathi
Chief Minister: D. Ramachandran

Speaker: G. Pazhaniraja
Chief Secretary: P.M. Nair
Jurisdiction of High Court: Falls under jurisdiction of Madras High Court.

AREA, POPULATION AND HEADQUARTERS OF DISTRICTS

District	Area (sq km)	Population	Headquarters
1 Karaikal	160	1,20,010	Karaikal
2. Mahe	9	28,413	Mahe
3. Pondicherry	293	4,44,417	Pondicherry
4 Yanam	30	11,631	Yanam

30 Diary of National Events 1989

JANUARY

1 India agrees to withdraw two battalions (3,000 soldiers) of Indian Peace Keeping Force (IPKF) following a request from Sri Lankan President-elect R. Premadasa.

— Prof. G. Sankara Pillai, 58, Malayalam playwright, dies in Kottayam.

— Dinakar Sakhrikar, 67, freedom fighter, socialist leader and journalist, dies in Bombay.

— B. Basavanna, 68, noted artist and sculptor, dies in Mysore.

— Veteran film journalist D.P. Lahote, 76, dies in Bombay.

2 Ranasinghe Premadasa, 64, is sworn in President of Sri Lanka.

— President R. Venkataraman rejects mercy pettition of Kehar Singh, sentenced to death in Indira Gandhi assassination case.

— Safdar Hashmi, convenor of Jana Natya Manch, who sustained serious injuries in an attack on his theatre group in Sahibabad, dies in New Delhi.

3 Oil struck at Mansa in Gujarat, Uriamghat in Assam and gas at B-46 north-west of Bombay High.

— District Jathedars of Akali Dal (L) unanimously reject resignation of party president Surjit Singh Barnala.

5 Supreme Court dismisses all fresh petitions on behalf of Satwant Singh and Kehar Singh convicted in Indira Gandhi murder case.

— Government announces new integrated policy on oilseeds to accelerate self-reliance by boosting indigenous output.

6 Satwant Singh and Kehar Singh, convicted in Indira Gandhi murder case, hanged inside Tihar Jail in New Delhi.

7 Prime Minister Rajiv Gandhi inaugurates 76th session of Indian Science Congress at Madurai.

✓9 Five-member executive committee on Darjiling Gorkha Hill Council announced in Darjiling.

10 Twelfth International Film Festival of India begins in New Delhi.

— President R. Venkataraman presents Sangeet Natak Akademi awards to 25 eminent artists in Lucknow.

— Prime Minister Rajiv Gandhi gives away National Youth awards for 1987-88 in New Delhi.

11 Sri Lankan government announces to lift emergency from the midnight of 11 January.

— President R. Venkataraman inaugurates birth centenary celebrations of veteran socialist leader Acharya Narendra Dev at Sitanpur in Uttar Pradesh.

— Government extends terms of Municipal Corporation of Delhi and Delhi Metropolitan Council by one year, expiring on 7 February and 18 March respectively.

— Punjab government announces relaxation in upper age limit by five years for recruitment to state services.

— Leaders of four left parties-CPI, CPI(M), Forward Block and Revolutionary Socialist Party along with Lok Dal(B), Congress(S) and Jan Morcha, form a national campaign committee for a left democratic and secular programme to revolutionise national political situation.

13 India and the Soviet Union sign a package of agreements in Moscow which would enable India acquire civilian aircraft for Indian Airlines, Air india and Vayudoot from USSR.

16 Soviet Union agrees to change market-related prices from January this year for its oil supplies to India.

— Chairman of US Congressional Sub-Committee on Asia and Pacific Affairs Stephen Solarz calls on Prime Minister Rajiv Gandhi in New Delhi.

— Veteran Malayalam film actor Prem Nazir, 61, dies in Madras.

— Chapala Kanta Bhattacharya, 88, veteran journalist and former member of Parliament, dies in Calcutta.

17 Justice R.S. Sarkaria, former Supreme Court judge, nominated chairman of Press Council of India.

18 Prime Minister Rajiv Gandhi assures Sri Lanka on India's willingness for a treaty of friendship between the two countries replacing Indo-Sri Lanka accord.

— O.P. Bharati, 59, chief reporter of Urdu daily, Pratap, dies in New Delhi.

19 Pondicherry Assembly speaker Kamichatty S. Vasaprasada Rao Naidu dies in Madras.

— Campaiging in Tamil Nadu, Mizoram and Nagaland ends for 33 Assembly seats going to polls on 21 January.

20 George Herbert Walker Bush sworn in the 41st President of the Unite States of America.

— Jibantara Haldar, 96, veteran freedom fighter, dies in Calcutta.

— Prime Minister Rajiv Gandhi inaugurates K.M. Munshi Centenary an Bharatiya Vidya Bhavan Golden Jubilee celebrations in New Delh

— Madhya Pradesh High Court orders inquiry by an independent agenc into Churhat Children's Welfare Society.

— Government withdraws 15 drugs from Drug Price Control Order, 198 and transfers four categories from Schedule 1 to Schedule 2.

23 Dravida Munnetra Kazhagam (DMK) led by M. Karunanidhi wins 14 out of 232 seats in Tamil Nadu Assembly elections.

— Madhya Pradesh Chief Minister Arjun Singh tenders his resignatio

24 A nine-member ministry headed by Lalthanhawla is sworn in.

— The 18-day 'Apna Utsav, Bombay 1989' ends in Bombay.

25 In Madhya Pradesh, a nine-member ministry headed by Motilal Vo is sworn in.

— Forty four civilian awards including three Padma Vibhushan, 14 Padma Bhushan and 27 Padma Shri, announced.
25 A fifteen-member ministry headed by S.C. Jamir assumes office in Nagaland.
— Prime Minister Rajiv Gandhi presents in New Delhi, National Bravery awards for 1988 to 26 children.
— S.V. Joshi, 75, veteran freedom fighter, dies in Panaji.
26 Government approves formation of a Telecom Commission to oversee and plan development of telecommunications.
27 Prime Minister Rajiv Gandhi inaugurates Panchayati Raj Sammelan in New Delhi.
— In Tamil Nadu, a sixteen-member DMK ministry headed by M Karunanidhi is sworn in.
— Biren Dey, 78, veteran freedom fighter and journalist, dies in Calcutta.
28 Prof. H.D. Sankalia, 80, doyen of Indian archaeology, dies in Pune.
— Veteran journalist and freedom fighter Dakshina Rajan Bose, 75, dies in Calcutta.
— Six non-Congress (I) chief ministers at a meeting in Calcutta, call upon Centre and Ninth Finance Commission to write off 50 per cent of outstanding credit component of Central Plan assistance to states.
— Prime Minister Rajiv Gandhi gives away Jamnalal Bajaj awards at Sewagram in Wardha.

FEBRUARY

1 Visiting French President Francois Mitterrand and Prime Minister Rajiv Gandhi stress the need for reducing the yawning economic gap between developed and developing countries.
2 Satyajit Ray, noted film maker, is conferred Legion d's Honour, highest civilian award of France, by visiting French President Francois Mitterand in Calcutta. He is first in India to receive this prestigious honour and third in the world after Orson Welles and Kurosawa.
3 Year-long Festival of France in India is formally inaugurated in Bombay by French President and Indian Prime Minister.
4 Niaz Haider, 76, eminent poet, dramatist and film writer, dies in New Delhi.
— Soviet Union completes withdrawal of all its troops from Afghanistan.
5 Dr. (Smt.) Rajinder Kaur, president of Istri Akali Dal and Baldev Singh Khokhar, an advocate, are shot dead in Bhatinda.
6 Doordarshan's Central Production Centre, a unit for producing high quality television programmes, is inaugurated in New Delhi.
7 Ustad Nasir Faiyazuddin Dagar, 55, youngest of the famous Dagar brothers, dies in New Delhi.
8 Ms. Gro Harlem Brundtland, Prime Minister of Norway, is awarded 1988 Indira Gandhi Prize for Peace, Disarmament and Development.
– U.R. Kalkur, 58, chief editor and general manager of United News of India, dies in Karnataka.

— Andhra Pradesh Chief Minister N.T. Rama Rao drops all the 31 ministers from his cabinet.

9 Two-day conference of Chief Ministers on Sales Tax begins in New Delhi.

— A devastating fire at Premier film studios in Mysore, during shooting of a TV serial by actor-director Sanjay Khan, leaves more than 40 dead.

— A major fire destroys a large portion of Module I at terminal 4 of Sahar international airport in Bombay.

— Visiting Australian Prime Minister Bob Hawke calls on Prime Minister Rajiv Gandhi in New Delhi

10 India and Australia sign three memoranda of understanding on cooperation in railways, telecommunications and meteorology at the end of Australian Prime Minister Bob Hawke's visit to India.

— Chief Ministers of five states ruled by constituents of National Front at a meeting in New Delhi declare their resolve to work towards a common programme and release a 21-point action programme.

— Two-day conference of Chief Ministers on Sales Tax and related issues concludes in New Delhi.

— Second World Urdu Conference opens in New Delhi.

— A new newspaper in Gujarati from Times of India group is launched from Ahmadabad

12 Pandit Narendra Sharma, 77, veteran Hindi film writer and lyricist, dies in Bombay.

— Janaki and Jayalalitha factions of AIADMK formally merge into one unit.

13 Hindi awards presented to 25 eminent Hindi scholars.

— A three-day seminar on regional cooperation for environment protection in South Asia begins in New Delhi

— Noted Kannada film director, producer, actor and lyricist Hunsur Krishnamurthy, 75, dies in Mysore.

— Renowned writer Aubrey Menon, 76, dies in Trivandrum.

— Prime Minister Rajiv Gandhi presents first Lal Bahadur Shastri Memorial awards for agricultural and allied sciences.

14 Supreme Court awards $ 470 million (Rs 714 crore approximately) as compensation to those killed and maimed in Bhopal gas tragedy. It also directs Union Carbide to pay the amount to Indian Government on or before 31 March 1989.

15 Union Carbide and Government of India sign memorandum of settlement on Bhopal gas tragedy before Supreme Court.

16 USSR chief negotiator on Afghan issue Yuli Vorontsov calls on Prime Minister in New Delhi.

— Iranian President Ayotollah Khomeini calls for the execution of India-born author Salman Rushdie for his controversial book *Satanic Verses.*

18 Government announces revised pay scales for agriculture scientists from January 1986.

— Eighth Engineering Trade Fair begins in New Delhi.

— *K.Srinivasan, 71, eminent journalist,* dies in New Delhi.
19 Jagannath Pahadia, Sarla Grewal and S.K. Bhatnagar appointed Governors of Bihar, Madhya Pradesh and Sikkim respectively.
— *Kerala Sastra-Sahitya Parishad,* a voluntary organisation, gets Indira Gandhi environment award for 1988.
20 Sahitya Akademi awards for 1988 given away.
21 Mulk Raj Saraf, 97, known as father of journalism in Jammu and Kashmir, dies in Bombay.
— Indira Gandhi National Open University confers honorary degree of Doctor of Letters on Commonwealth Secretary General Dr. S.S. Ramphal.
22 Shram Awards -1988 presented to 15 workers in New Delhi.
— F.M. Baradwad, 89, freedom fighter and chairman of Hampi Hema Koota Devanga Jagat Guru Samiti, dies in Gadag, Karnataka.
— Turkish President Kenan Evren calls on President R. Venkataraman in New Delhi.
24 Japanese Emperor Hirohito is laid to rest on the 49th day of his death.
— National Conference on Panchayati Raj and Scheduled Castes opens in New Delhi.
25 Madhya Pradesh government announces the appointment of Justice S.T. Ramalingam of Madras High Court to enquire into Churhat Children's Welfare Society.
— Home Minister Buta Singh reiterates in New Delhi that the Centre is against division of Assam as demanded by All Bodo Students Union.
27 President R. Venkataraman presents 1987 Jawahar Lal Nehru Award for International Understanding to UN Secretary General Javier Perez de Cuellar in New Delhi.

MARCH

1 Vasantrao Patil, 71, former Maharashtra Chief Minister, veteran freedom fighter and leader of cooperative movement, dies in Bombay.
— Fifteen sportspersons and two coaches honoured with Arjuna awards and Dronacharya awards for 1987.
— Opposition parties in Parliament call off their boycott and decide to return to the two Houses in larger public interest.
— South Asia Book Fair opens in New Delhi.
2 Former Defence secretary S.K. Bhatnagar assumes office of Governor of Sikkim replacing T.V. Rajeswar appointed as Governor of West Bengal.
— Bhai Abdul Ghani, 91, father of Hindi journalism in Madhya Pradesh and veteran freedom fighter, dies in Sagar.
3 Dingiri Banda Wijetunge appointed as Prime Minister of Sri Lanka.
— Jagannath Pahadia is sworn in as new Governor of Bihar while Prof. S. Nurul Hasan takes over as Governor of Orissa.
— Prime Minister Rajiv Gandhi announces in Parliament a package of measures including Government's decision to release all the remaining

Jodhpur detainees, except those facing serious charges, for resolving Punjab tangle.

4 Bihar Chief Minister Bhagwat Jha Azad, Labour Minister Bindeshwari Dubey and six Union ministers from the state submit their resignations to Rajiv Gandhi.

— Baba Prithvi Singh Azad, 98, veteran freedom fighter and founder member of Ghadar Party, dies in New Delhi.

6 All the 188 Jodhpur detainees released, but 84 detainees including Shiromani Gurdwara Prabandhak Committee president Gurcharn Singh Tohra rearrested on pending charges against them.

— Prime Minister Rajiv Gandhi receives in New Delhi, International Science Policy Foundation Medal given posthumously to Jawaharlal Nehru for his encouragement to scientific thinking.

7 World Bank sanctions 4,850 lakh dollar loan to India for building one of its biggest hydro-power structure on the Sutlej in Himachal Pradesh.

— India and Japan sign a new convention for avoidance of double taxation and prevention of fiscal evasion to provide incentive and facilitate more investments between the two countries.

8 Punjab Janata Dal leader Dr. Sadhu Ram gunned down by terrorists in Kapurthala.

— Indira Mohan Singh, 65, veteran freedom fighter and Congress MLC from Bihar, dies in Patna.

9 PLO Chief Yasar Arafat calls on Prime Minister in New Delhi.

10 N.L. Chawla, 67, former director of Indian Institute of Mass Communication and former additional director general of Doordarshan, dies in New Delhi.

— Bhagwat Jha Azad, Chief Minister of Bihar, resigns.

11 In Bihar, a twelve-member ministry headed by Satyendra Narayan Sinha is sworn in.

— V.V. Shirwadkar, renowned Marathi poet and playwright, awarded 23rd Jnanpith award for 1987 in Bombay.

— Tamil Nadu announces 20 per cent reservation in jobs and admission to educational institutions exclusively for most backward classes and denotified communities.

14 Krishnan Srinivasan appointed Indian high commissioner to Bangladesh replacing I.S. Chadha who goes to Cairo.

15 Sixty three opposition members suspended from the Lok Sabha for their alleged unruly behaviour while demanding tabling of Thakkar Commission report.

16 Sixty nine opposition members of Parliament urge President R. Venkataraman to exercise his authority in securing the publication of Thakkar Commission report on assassination of Indira Gandhi.

— Noted Tamil writer Al Valliappa, 67, dies at Madurai.

— Bangkok-based Asian World Publishing Congress presents Asian magazine award to India Today.

17 Prime Minister Rajiv Gandhi announces in the Lok Sabha that Thakkar Commission report will be tabled in both the Houses on 27 March.

— All the 27 ministers of Rajasthan cabinet tender their resignations to Chief Minister.
— Hemvati Nandan Bahuguna, 70, veteran politician, president of Lok Dal (B) and former Union minister, dies in New York.
— 'Media India' awards presented in New Delhi.
19 President R. Venkataraman presents National awards for the welfare of the handicapped in New Delhi.
20 National awards for child welfare given away in New Delhi.
23 Trade and transit treaties between India and Nepal expire.
24 Superfast train (Shatabdi Express) introduced between New Delhi and Kanpur covering 435 km in 290 minutes.
25 National Agricultural Fair 1989 opens in New Delhi.
— President R. Venkataraman presents Padma Vibhushan, Padma Bhushan and Padma Shri awards at an investiture ceremony at Rashtrapati Bhavan in New Delhi.
26 First indigenously made radar *Indra-I* is handed over to Air Force by Defence Minister K.C. Pant.
— India rejects Nepal's plea for temporary extension of trade and transit treaties before starting negotiations for new arrangements.
27 Thakkar Commission report in two parts laid on the table of both Houses of Parliament.
— One week suspension of opposition leader in Tamil Nadu Assembly, Ms. Jayalalitha and 27 other AIADMK members from the House revoked.
28 Thai Prime Minister discusses economic cooperation and Kampuchean issue with Prime Minister Rajiv Gandhi in New Delhi.
30 President R. Venkataraman gives his assent to the Constitution (61st Amendment) Bill, 1988 which seeks to lower voting age from 21 to 18.
31 National Productivity awards for 1987-88 presented in New Delhi.
— Smt. Sarla Grewal is sworn in as Governor of Madhya Pradesh.

APRIL

1 S.N. Joshi, 85, veteran socialist leader and freedom fighter, dies in Pune.
2 PLO chief Yasser Arafat is elected president of Palestinian state.
— Government announces withdrawal of all blood-based products from market as a precautionary measure following reports of presence of AIDS virus in some of them.
— At the 66th annual convocation of Delhi University, veteran freedom fighter N. Farooqi and businessman Dhurva Sanghi receive their master's and bachelor's degree respectively, forfeited by the then British government in 1940 for leading anti-repression strike and participating in freedom struggle.
3 Lok Sabha speaker Balram Jakhar rules that Thakkar Commission report as tabled by Government is complete.
— Five-day Panchayati Raj Sammelan of eastern and north-eastern states begins in Calcutta.

— Jagnnath Sharma, 68, veteran freedom fighter and former member of Rajasthan Legislative Assembly, dies in Ajmer.

5 Forty five Jodhpur detainees rearrested against old cases after their release, set free on recommendations of Ribeiro Committee appointed by Punjab government to process their cases Remaining 33 detainees not released as they were involved in a number of serious cases

6 Twenty four IPKF soldiers killed in two separate ambushes by LTTE in northern Sri Lanka.

— Pannalal Patel, 77, Gujarati litterateur and recipient of Jnanpith Award 1986, dies in Ahmadabad.

— Dharam Veer Sinha, 55, former Union deputy minister, dies in Bombay.

7 Special Investigation Team (SIT) files its second charge sheet in a New Delhi court implicating five persons for waging war against the state and plotting to kill Indira Gandhi. They are former IPS officer Simranjit Singh Mann and Atinder Pal Singh already in police custody, Jagmohan Singh 'Toni' and Dalip Singh both lecturers in Bombay and Rattan Singh who is now dead

— Basawan Singh, 81, freedom fighter and socialist leader, dies in Patna.

8 Guru Dutt, 95, popular Hindi writer and ayurvedic physician, dies in New Delhi.

— President R. Venkataraman presents gallantry awards to outstanding Defence personnel at investiture ceremony at Rashtrapati Bhavan in New Delhi.

9 Asia's first fully underground 120 mw Sanjay Hydel Project commissioned in Kinnaur, Himachal Pradesh.

10 National awards for master craftsmen 1987 presented in New Delhi.

— Prime Minister Rajiv Gandhi informs the Lok Sabha that an inquiry will be held into leakage of Thakkar Commission report.

11 Assam Governor Bhishma Narain Singh resigns.

— Government announces in the Lok Sabha the constitution of Telecom Commission for rapid development of telecommunications.

13 National Awards-1988 for films announced in New Delhi. Malayalam film *Piravi* directed by Shaji N Karun wins *Swarn Kamal* for the best feature film.

— Prime Minister Rajiv Gandhi lays the foundation stone of Rs 2,267 crore Nathpa-Jhakri hydro-electric project on the Sutlej in Himachal Pradesh.

/ 14 Dadasaheb Phalke Award-1988 is conferred on Ashok Kumar.

— Foundation stone of Ambedkar University of Excellence laid in Lucknow.

— President R. Venkataraman inaugurates Platinum Jubilee celebrations of Indian cinema in Madras.

17 All Bodo Students Union (ABSU) leaders fail to turn up for proposed talks with Asam Gana Parishad (AGP) government to reach a settlement on Bodo agitation.

— Central Institute of Fisheries Education (CIFE), Bombay, elevated to the status of university making it nation's first fisheries university. India becomes second country in the world after Japan to have such a university.

18 Bhagwan Mahavir Memorial Vanasthali inaugurated in New Delhi.

— Raghunandan Swarup Pathak, Chief Justice of India, is elected Judge of International Court of Justice.

— Veteran freedom fighter and former Rajya Sabha member Gatachand Bhuyan, 62, dies in Cuttack.

20 India's first Intermediate Range Ballistic Missile (IRBM) *Agni* fails to take off from Interim Test Range (ITR) at Chandipur-on-sea, Orissa.

21 Karnataka Assembly dissolved and President's rule imposed.

— Supreme Court directs Madhya Pradesh government to pay Rs 750 per month as interim relief to dependants of each adult killed in 1984 Bhopal gas disaster.

23 Bharatendu Harishchandra Awards-1987 presented in New Delhi.

27 In Bangladesh, a tornado wipes out more than 20 villages leaving 1,000 killed and 15,000 injured.

— Actor of yester years and close associate of late Dadasaheb Phalke, Ganpatrao Tambat, 89, dies in Nasik.

28 Prime Minister Rajiv Gandhi announces in Parliament, launching of Jawahar Rozgar Yojana for providing massive employment to rural poor.

— Supreme Court directs Madhya Pradesh government to pay Rs 3,000 each to over 770 victims of Bhopal gas tragedy identified so far in the injured category.

— Pinchoo Kapoor, 60, veteran film character actor, dies in Bombay.

— Harideo Joshi, former Rajasthan Chief Minister appointed Governor of Assam and Meghalaya. Resignation of Hiteswar Saikia, Governor of Mizoram is accepted by President.

29 Conference of Panchayati Raj institutions in southern states opens in Bangalore.

— Mahendra Nath Sastri, noted Sanskrit scholar from Tezpur, Assam, selected for President's award for his contribution to the language.

MAY

1 Foreign secretary S.K. Singh reaches Colombo as Prime Minister's special envoy for talks with President Premadasa.

— Agni's launching again postponed for second time due to some technical problems in one of its sub-systems.

2 Government calls Indian ambassador in Kathmandu A.R. Deo to Delhi to discuss India's relations with Nepal.

— Foreign secretary S.K. Singh calls on President Premadasa in Colombo and conveys a special message from Prime Minister of India.

3 Supreme Court reserves ruling on the Bhopal Gas Act.

— West Indies win the fourth test match against visitors India and also clinch the series 3-0.

4 Two-day conference on Panchayati Raj and Women ends in New Delhi with an assurance of 30 per cent reservation for women in panchayats.

— President Premadasa of Sri Lanka meets five LTTE rebels in Colombo for restoring peace and ending separatist war.

5 Naval H. Tata, 84, eminent industrialist, dies in Bombay.

— Chief Ministers' conference ends in New Delhi.

— Sri Lankan officials and LTTE hold first round of preliminary discussions in Colombo.

7 Jasmer Singh, president of Unified Akali Dal (UAD), is killed by terrorists.

— Border Roads Organisation completes twenty nine years of service to the nation.

9 Parliament approves extension of President's rule in Punjab by six months from 11 May.

11 Lok Sabha speaker Balram Jakhar directs Government to lay on the table of the House the report of Comptroller and Auditor-General on Bofors deal.

12 Government rejects opposition's demand for a probe by Comptroller and Auditor-General into fodder machine import scandal involving Lok Sabha speaker Balram Jakhar.

— Parliament passes a bill to enable new voters above 18 to participate in general elections this year.

— Mirwaiz Moulvi Farooq makes a fiery speech against Centre and state government during Friday prayers at Jama Masjid in Srinagar.

14 Seven members of Bihar Legislative Assembly and Council resign to press the demand for a Jharkhand state.

— Hasit Buch, 69, veteran freedom fighter and eminent poet, dies in Vadodara.

— Twelve IPKF men among 50 killed in renewed violence in Sri Lanka.

15 Prime Minister Rajiv Gandhi introduces the Constitution (64th Amendment) Bill, 1989 pertaining to Panchayati Raj in the Lok Sabha.

— Khalistan Commando Force General Lakhwinder Singh *alias* Lakha and his associate commit suicide.

16 Eighteen opposition members of Parliament resign from financial committees following appointment of AIADMK member P.Kolandaivelu as chairman of Public Accounts Committee.

— India becomes first country to completely codify Muslim personal law by renowned Islamic scholar Mufti-Fasil-ul-Rehman Hila Osmani.

— Prime Minister's Principal aide on foreign policy Romen Sen confers in Islamabad with his counterpart Akhund, on finding a political solution to Siachen dispute.

17 India's first earth station using intermediate data, *Jawahar* is commissioned in Bombay.

19 Chinese authorities impose martial law in Bejing tonight to quell week-long pro-democracy demonstrations.

20 Students in Beijing defy martial law, anti-government demonstrations spread to cities and rural areas.

— Dalip Singh, CPI (M) leader and six of his family and nine others gunned down by terrorists in Punjab.
— S.G.Bhat, 62, prominent CPI leader of Karnataka and freedom fighter, dies in Bangalore.
21 Talks between Home secretaries of Pakistan and India begin in Islamabad on bilateral problems relating to narcotics and arms smuggling, terrorist manace and Pakistani encouragement to it.
22 India becomes sixth nation to acquire indigenous Intermediate Range Ballistic Missile with successful launching of Agni from Interim Test Range at Chandipur, Orissa.
— Bhagat Chajju Ram, 82, veteran Congress (I) leader and member of J and K Constituent Assembly, dies in Jammu.
23 President R.Venkataraman gives his assent to the Representation of People (Amendment) Act under which people above 18 on 1 April 1989 will be eligible to exercise their franchise.
— *INS Savitri,* offshore patrol vessel built by Hindustan shipyard for Indian Navy, is launched in Vishakhapatnam.
24 S.K. Dey, 83, former Union minister and architect of Panchayati Raj institutions, dies in New Delhi.
— Three-day talks between Home secretaries of India and Pakistan conclude in Islamabad with a resolve that border security forces of both the countries will undertake simultaneous coordinated patrolling to check trans-border crimes.
25 Mikhail Gorbachev re-elected President of the Soviet Union.
26 Prime Minister Rajiv Gandhi dedicates the new port of 'Nhava Sheva' to the nation,
28 Tens of thousands of students stage fresh anti-government demonstrations in Beijing.
29 Government announces special recruitment drive to fill Central government vacancies for SC/ST to be launched from June to July and directs UPSC to fulfil its recruitment obligations by 31 August.
30 Bir Bahadur Singh, 54, Union minister, dies in Paris.
— Justice V.N. Bachawat submits Wage Boards report to Government in New Delhi.
31 Special Commissioner of Special Investigation Team (SIT) Anand Ram relinquishes charge.
— The 36th National Film awards presented in New Delhi.
— Eight *Mirage - 2000* combat aircraft badly damaged in hanger collapse at Gwalior air base.

JUNE

2 Foundation stone of 3,000 mw Talcher Super Thermal Power project is laid at Kanina, Orissa.
3 Vishnu Sahay, 86, former Assam Governor and Union Cabinet secretary, dies in New Delhi.
4 Ayotollah Ruhollah Khomeini, 86, founder of Iran's Islamic Republic, dies in Teheran.

— Melville de Mello, 76, noted broadcaster and sports commentator, dies in New Delhi.

— President Premadasa's envoy Bernard Tilkaratne calls on Prime Minister Rajiv Gandhi and hands over a message from Sri Lankan President.

5 *Trishul*, India's surface-to-surface missile manufactured indigenously with a range of 25km is successfully test fired from Interim Test Range base at Chandipur-on-sea, Orissa.

— Indira Gandhi Paryavaran Puraskar and Indira Gandhi Vrikshamitra awards for 1988, given away in New Delhi.

6 President R. Venkataraman leaves on a weak-long visit to Zimbabwe, Zambia and Tanzania.

7 Prime Minister Rajiv Gandhi inaugurates the 125th year of publication of the newspaper, Pioneer, in New Delhi.

9 The 2,000 mw Singrauli Super Thermal Power Station at Shaktinagar, Uttar Pradesh dedicated to the nation

10 Foundation stone of 600-bed Indira Gandhi Medical Institute laid in Gwalior.

12 Mohammad Yunus resigns from chairmanship of Trade Fair Authority of India.

13 Foundation stone of Rs 50 crore *Yamuna Sports Complex* laid in New Delhi.

14 Prime Minister Rajiv Gandhi categorically states in Bangalore that IPKF withdrawal from Sri Lanka depends on full implementation of Indo-Sri Lanka accord.

15 Dr. Karan Singh, former Union minister appointed India's ambassador to the United States replacing P.K. Kaul.

— Prime Minister Rajiv Gandhi says in Madras that India is ready for talks with Sri Lanka to resolve pending items of Indo-Sri Lanka accord.

— Government enforces new provisions making registration of political parties mandatory under the Representation of People Act as amended last year.

16 Election Commission calls upon all political parties to apply for registration before 14 August as required under the Representation of People (Amendment) Act, 1988.

17 Justice E.S. Venkataramiah is appointed new Chief Justice of Supreme Court in place of Justice R.S. Pathak who earlier relinquished his post to join International Court of Justice at Hague.

— Defence secretaries of India and Pakistan conclude talks in Islamabad agreeing over avoidance of use of force to ensure durable peace in Siachen area.

20 President Premadasa of Sri Lanka reimposes emergency in Sri Lanka which was lifted in January this year.

— India is to receive concession assistance and project aid of 67,000 lakh dollar from Aid India Consortium for 1989-90.

— Postage stamp to commemorate 100 years of Kirloskar group of companies released.

— Prime Minister Rajiv Gandhi writes to Sri Lankan President Premadasa reiterating Indian position regarding IPKF withdrawal from the Island.

24 Twenty three people including Taran Taran SP Avtar Singh Chhetra and 12 terrorists killed in separate encounters in Punjab.

— National Festival organised by National Preparatory Committee of India for XIII World Festival of Youth and Student opens in New Delhi.

25 Twenty four RSS workers killed and several others injured in an indiscriminate firing by terrorists at their *Shakha* in Moga, Punjab.

26 Country-wide agitation organised by National Front and other opposition parties outside All India Radio and Doordarshan centres to protest against alleged misuse of official electronic media by ruling party.

27 Two-day conference of Chief secretaries of states/UTs opens in New Delhi to mainly discuss communalism in the backdrop of Ram Janmabhoomi-Babri Masjid controversy.

28 Foundation stone of country's first Float Glass Plant laid at Bargarh in Banda, Uttar Pradesh.

— Babubhai Sopariwala, 55, former Gujarat minister, dies in Ahmadabad.

— South Asian Association for Regional Cooperation (SAARC) Foreign Ministers' meeting scheduled to start at Islamabad on 1 July postponed because of Sri Lanka's decision to boycott it.

— INSAT-1D spacecraft, which met with an accident at Kennedy Space Centre, USA on 20 June, is removed for repairs.

29 Dr. (Smt.) Madhuri Shah, 70, well known educationist and former chairperson of University Grants Commission, dies in Bombay.

— Supreme Court Judge Justice Kuldip Singh to head one-man commission of inquiry to probe into two land transactions taking place in Karnataka in 1987 and 1988.

JULY

1 President R. Venkataraman inaugurates the work on 630 mw Madras thermal power station's first stage at Ennore, Madras.

— The Motor Vehicles Act, 1988 replacing the 1939 Act, comes into effect.

— Gen. K.V. Krishna Rao, Dr. Gopal Singh, Chintamani Panigrahi and Sultan Singh are appointed Governors of Jammu and Kashmir, Nagaland, Manipur and Tripura respectively. Khurshid Alam Khan becomes new Governor of Goa and Administrator of Dadra and Nagar Haveli.

— Ratan Tata and Rahul Bajaj reappointed as chairmen of reconstituted boards of Air India and Indian Airlines respectively.

— First meeting of the Sino-Indian joint working group on border issue begins in Beijing.

2 Junior doctors call off their 43-day old strike following an agreement.

3 Eight Jharkhand Mukti Morcha MLAs submit resignations from Bihar Assembly in support of their demand for a separate Jharkhand state.

4 Capt. W.A. Sangma, former Meghalaya Chief Minister appointed Governor of Mizoram and A.A. Rahim, former minister of state, Governor of Meghalaya.

5 Press censorship imposed in Sri Lanka on local newspapers banning publication of matters prejudicial to national security.

6 Kokrajhar district in Assam, main centre of All Bodo Students Union's agitation, declared a disturbed area.

10 Chintamani Panigrahi, former Union minister, appointed Governor of Jammu and Kashmir.

12 Prime Minister Rajiv Gandhi leaves for Paris on a three-day visit to attend bi-centenary celebrations of French Revolution.

13 Appapilai Amritlingam and Yogeswaran, leaders of moderate Tamil United Liberation Front shot dead in Colombo.

14 Farmers' unions from Uttar Pradesh, Maharashtra, Gujarat, Punjab, Orissa and Karnataka announce formation of a national organisation Bharatiya Kisan Union to take up their demands at national level.

16 Rajiv Gandhi and Benazir Bhutto at their talks in Islamabad, express resolve to remove all irritants plaguing bilateral relations.

— People's Liberation Organisation Tamil Eelam (PLOTE) leader Uma Maheswaran is gunned down in Colombo.

17 Tara Ali Baig, 72, prominent social worker, writer and television personality, dies in Madras.

— Surjit Singh Barnala reassumes presidentship of Akali Dal (L).

— P.T. Usha wins women's 400 metres and 200 metres to help India bag team title at Malaysian Open Athletics meet.

18 Comptroller and Auditor-General report presented in the Lok Sabha which among other things points out lapses in Bofors gun deal.

— Third Indo-Pakistan Joint Commission meeting begins in Islamabad.

19 In Sri Lanka, North-Eastern Province Chief Minister A. Varadarajan Perumal survives assassination attempt

— Both Houses of Parliament adjourned for the day following uproarious scenes on Comptroller and Auditor-General's report on Bofors gun deal.

— India and Pakistan decide to ease trade curbs at the end of two-day meeting of the third Indo-Pakistan Joint Commission.

20 Parliament proceedings stalled for the second day on CAG report on Bofors gun deal. Opposition continues its demand for Government's resignation.

— Dr. Gopal Singh sworn in as first Governor of Nagaland.

21 Opposition obstructs proceedings of Parliament on the third consecutive day on CAG report on Bofors gun deal.

— Sitar maestro Ustad Mustaq Ali Khan, 79, dies in Calcutta.

— Ghalib Award for 1987-88 presented in New Delhi.

22 Major opposition parties plan *en masse* resignation of their members from the Lok Sabha on CAG report on Bofors gun deal.

— President Premadasa of Sri Lanka threatens to treat Indo-Sri Lanka accord as inimical to his country's interest if India continues to keep

IPKF in the Island without approval of his government.

23 Major opposition parties decide that all their 106 MPs will resign from the Lok Sabha in an unprecedented protest over Bofors issue.

— Chairman of Sri Lanka Broadcasting Corporation and chief censor Tehvius Guruge shot dead in Colombo.

24 Seventy three opposition members resign from the Lok Sabha over Bofors gun issue.

— Acrimonious debate in the Rajya Sabha over the resignation of opposition MPs.

— Sri Lanka lifts 20-day old press censorship imposed on 5 July 1989.

25 Nine more opposition MPs of the Lok Sabha resign on Bofors issue.

— Families of the Indian high commission employees in Colombo sent back to India following uncertain situation in view of 29 July deadline set by Sri Lanka for pull-out.

26 Ten more opposition members of the Lok Sabha resign.

— Prime Minister Rajiv Gandhi rules out the possibility of dissolving the Lok Sabha in the wake of resignation of opposition members from the House.

— Veteran communist leader and member of CPI (M) central committee Eshav Sarkar, 62, dies in Calcutta.

27 Sri Lanka drops the deadline for IPKF pull-out and sets new terms.

— In Sri Lanka, nationwide curfew imposed following JVP agitation demanding IPKF withdrawal.

— One more opposition member resigns from the Lok Sabha raising the number of those resigned on Bofors gun deal to 93.

28 Sri Lanka decides to send its Foreign minister to New Delhi to discuss IPKF withdrawal. India agrees to a token pull-out on 29.

— Two more opposition members resign from the Lok Sabha.

29 H. Ali Akbar Rafsanjani declared elected President of Iran.

— Six hundred IPKF men sail from Trincomalee for Madras.

— Foreign Ministers of India and Sri Lanka begin talks in New Delhi on IPKF withdrawal, India seeking guarantee on Tamil safety.

31 The visiting Sri Lanka Foreign minister Wijeratne confers with Prime Minister Rajiv Gandhi, to sort out impasse over the issue of IPKF pull-out

— Rao Birendra Singh, former Agriculture minister resigns from Congress party membership and the Lok Sabha against Government's stand on CAG report and what he called failure to obtain desired results out of Punjab and Sri Lanka accords.

— Ramon Magsaysay Award goes to Laxmi Kant Jain, a development economist.

AUGUST

1 Entire opposition in the Rajya Sabha walks out on Bofors issue.

— Three more opposition members resign from the Lok Sabha taking the total of those resigned to 100.

— Chaudhary Mohammad Salahuddin, 61, Congress (I) MLA and former Bihar minister, dies in Patna.

2 H.N. Nanje Gowda, Congress (I) member of Parliament from Karnataka, expelled from the party for six years for indulging in anti-party activities.

— Vice President Dr. Shanker Dayal Sharma unveils portrait of freedom fighter Bhikaji Rustam Cama in Central Hall of Parliament.

— Two more opposition MPs resign from the Lok Sabha.

3 One more opposition member resigns from the Lok Sabha.

4 Indo-Sri Lankan ministerial-level talks on IPKF pull-out being held in New Delhi, run into trouble over the time table for total pull-out and connected issues.

5 H. N. Nanje Gowda expelled from the Congress (I), resigns from the Lok Sabha.

6 Six top Indian cricketers Dilip Vengsarkar, Kapil Dev, Arun Lal, Ravi Shastri, Mohd. Azharuddin and Kiran More debarred from playing in international and domestic cricket for one year.

— SAARC Technical Committee on Education begins its meeting in Dhaka.

7 Constitution (65th Amendment) Bill, 1987 also known as Nagarpalika Bill introduced in the Lok Sabha.

8 Uproar and walkout in the Rajya Sabha over PM's remark against the opposition in the Upper House while introducing the Nagarpalika Bill in the Lok Sabha.

— One more opposition member B.S. Ramoowalia of Akali Dal (L) resigns from the Lok Sabha taking the number of members quitting the House to 104 on Bofors gun deal.

— Third batch of 700 IPKF men leaves Sri Lanka for home.

9 Supreme Court issues notice to Board of Control for Cricket in India and Government on a petition challenging Board's decision to impose one year ban and financial sanctions on six Test cricketers.

10 The Lok Sabha passes the Constitution (64th and 65th Amendment) Bills, 1989 pertaining to Panchayati Raj and Nagarpalika.

— Sri Lankan Foreign minister says in Colombo that devolution of power to North-Eastern Province is not linked with IPKF pull-out.

— Saifuddin Ahmed, Asam Gana Parishad (AGP) member who declined to resign from the Lok Sabha, is expelled from primary membership of the party.

11 Veteran Pakistani politician and freedom fighter Ghaus Baksh Bizenjo, dies in Islamabad.

12 Ninety five people killed in group clashes between Bodos and others near Gohpur in Assam.

13 Assam government orders an inquiry into violent clashes near Gohpur.

14 Jagannarain Dev Sharma 'Kavi Pushkar', 96, veteran Hindi poet, dies in Varanasi.

— The Rajya Sabha expresses serious concern over mass killings in Gohpur.

— ISRO carries out a crucial manoeuvre to extend the life of INSAT—IB satellite up to mid-November 1989. It was expected to last till early October.
17 Syed Shahabuddin resigns from the Janata Party.
— Twenty four IPKF men killed in an attack by Tamil militants in Mannar in western Sri Lanka.
19 Indira Gandhi assassination conspiracy case committed to the sessions court.
22 Syed Shahabuddin launches a new party called Insaf Party.
— Krishnrao Shankar Pandit, 97, veteran musician, dies in Gwalior.
— The Jammu and Kashmir Special Powers (Press) Bill introduced in the State Assembly.
23 The Jammu and Kashmir Assembly passes the controversial J and K Special Powers (Press) Bill. Journalist organisations decry the Bill.
24 Emergency extended in Sri Lanka for another month.
25 Sarjoo Pandey, 78, freedom fighter and communist leader of Uttar Pradesh, dies in Moscow.
26 The J and K Legislative Council defers discussion on the controversial Press Bill for two days.
28 Tripartite talks between Centre, Assam government and All Bodo Students Union held in New Delhi on the vexed Bodo problem in Assam.
— Pandit Ramnandan Mistie, freedom fighter and close associate of Mahatma Gandhi, passes away in Patna.
30 Normal life affected in most parts of the country by opposition—sponsored *Bharat Bandh*
— Dinker Mehta, 82, marxist leader and freedom fighter, dies in Ahmadabad.
31 The J and K Legislative Council decides to take up the controversial Press Bill on 7 September.

SEPTEMBER

1 Jawaharlal Nehru Award for International Understanding for 1988 goes to PLO Chief Yasser Arafat.
— S. Sivaprakasam, 82, Tamil scholar and former member of the Rajya Sabha, dies in Pondicherry.
3 Prime Minister Rajiv Gandhi leaves for Belgrade for Non-aligned Summit.
— Shiv Kumar Shastri, 74, former member of Parliament and prominent Arya Samaj leader, dies in New Delhi.
4 In Belgrade, Ninth NAM summit begins.
— Prime Minister Rajiv Gandhi and King Birendra of Nepal hold talks in Belgrade on bilateral issues.
5 Addressing Ninth NAM summit in Belgrade, Prime Minister Rajiv Gandhi calls upon fellow Non-aligned countries to fight economic domination of North.
— India also proposes setting up of a planet protection fund for environment conservation under U.N.

6 Jammu and Kashmir government decides to defer introduction of controversial Special Powers (Press) Bill, 1989 in the Legislative Council

— In Belgrade, Prime Minister Rajiv Gandhi and Sri Lankan Foreign minister Ranjan Wijeratne hold talks on IPKF withdrawal and related issues.

7 The Ninth Non-aligned Summit ends in Belgrade.

— Smt. Chandra Tripathi, 60, member of Parliament, dies in Varanasi.

9 Ministerial level talks to increase trade between India and Bangladesh begin at Dhaka.

— Noted Bengali poetess and close associate of Rabindranath Tagore Radharani Devi, 86, dies in Calcutta.

12 India and the United States sign agreement to avoid double taxation and prevent tax evasion.

14 Board of Control for Cricket in India lifts one year ban on six Test cricketers.

— Noted agricultural scientist Dr. Benjamin P. Lal passes away in New Delhi.

— Jnanpith Award-1988 goes to noted Telugu poet Dr. C.N. Reddy.

— Pakistan readmitted as 49th member of the Commonwealth. It had withdrawn in 1972 in protest against Commonwealth's support to the erstwhile East Pakistan.

16 Dayanand Narvekar, speaker of the Goa Assembly, resigns.

— President R. Venkataraman leaves for West Germany on a six-day official visit.

17 Sharat Chandra Mohanty, 78, noted freedom fighter, dies in Bhubaneshwar.

18 First meeting of the Joint Commission on trade, economic, scientific and technical relations between India and China begins in New Delhi.

— India and Sri Lanka sign a pact in Colombo on IPKF withdrawal from the Island by 31 December.

19 Nehru Centenary International Althletics meet begins in New Delhi.

20 The 21st International Population Conference begins in New Delhi.

21 Sri Abhinava Vidya Theertha Mahaswamy, 73, 35th head of Sringeri *muth*, passes away at Narasimhawadi in Bangalore.

26 Shanti Swarup Bhatnagar awards for science and technology for 1988 announced.

27 Second successful test launch of indigenously produced surface-to-surface missile *Prithvi* carried out from Sriharikota station.

— Renowned singer, music director and Rabindra Sangeet exponent Hemant Kumar Mukherjee, 69, dies in Calcutta.

29 Uttar Pradesh Legistative Assembly passes the UP Official Language (Amendment) Bill seeking to accord Urdu the status of the second official language in the state.

— Julio Francis Ribeiro adviser to Punjab Governor appointed ambassador to Romania.

30 India's first indigenously built submarine *Shalki* commissioned at Mazagon Docks in Bombay.

— Sangeet Natak Akademi awards for 1989 announced. Lata Mangeshkar elected fellow of Sangeet Natak Akademi for her outstanding contribution to art and culture.

OCTOBER

2 Farmers rally in New Delhi organised by Kisan Coordination Committee splits into two following differences between Mahendra Singh Tikait and Sharad Joshi.

3 Ustad Bahadur Khan, 60, Sarod maestro, dies in Calcutta.

— The Armed Forces (Special Powers) Act, 1958 in force in the agitation-hit Kokrajhar district, withdrawn by Assam government.

— Uttar Pradesh Legislative Council passes the UP Official Language (Amendment) Bill, 1989 according status of second official language to Urdu.

4 R.V. Seshadri, 57, freedom fighter and journalist, passes away.

— Delhi High Court quashes notification of Delhi Administration dated 23 February 1987 appointing Jain-Banerjee Committee to investigate the 1984 riots.

5 Meera Sahib Fattima Beevi appointed the first woman judge of Supreme Court.

— Nobel Peace Prize for 1989 given to exiled spiritual leader of Tibet Dalai Lama for his non-violent struggle to free the Himalayan nation from Chinese rule.

7 Federal Court jury in Chicago rejects Morarji Desai's 1,000 lakh dollar libel suit against American Pulitzer prize winner Seymor Harsh for having called him a paid CIA informant in his book.

— Sri Ram Sharma, 86, former minister and freedom fighter, dies in Rohtak.

— Government accords scheduled tribes status to eight tribal communities of Leh and Kargil districts of Ladakh region in Jammu and Kashmir.

— Presidential announcement issued in New Delhi says that Government has decided to appoint two election commissioners to strengthen Election Commission.

9 Prof. Karl Sune Bergstorm, Swedish Nobel Laureate in medicine selected by Indian National Science Academy for Jawaharlal Nehru birth centenary medal for 1990.

10 Sumangal Prakash, 84, veteran freedom fighter, dies in New Delhi.

12 President's rule is extended for six more months in Punjab and Karnataka.

— Dr. N. V. Krishna Warrier, 73, eminent scholar, journalist and freedom fighter, dies in Calicut.

13 Two major Constitution (Amendment) Bills—one on Nagarpalika and the other on Panchayati Raj defeated in the Rajya Sabha.

— Visiting Chinese Vice Premier Wu Xueqian calls on Prime Minister in New Delhi.

14 Gauri Ram Gupta, 85, veteran freedom fighter and former legislator, dies in Gorakhpur

— Gudlavalluu Rama Rao, 69, veteran journalist and leader of working journalists movement, passes away in Hyderabad

15 First 235 mw unit of Narora Atomic Power project in Bulandshahr (UP) dedicated to the nation.

16 President R. Venkataraman appoints two election commissioners S.S Dhanoa and V.S. Saigell to help Chief Election Commissioner in view of increased workload following reduction in voting age from 21 to 18. This is for the first time that such appointments have been made.

— The retirement age of air hostesses of both Air India and Indian Airlines raised from 35 to 58 years.

17 Chief Election Commissioner announces in New Delhi that Lok Sabha and Assembly elections in Andhra Pradesh, Goa and Sikkim will be held on 22 and 24 November.

— Pakistan win the 1989 Sharjah Championship trophy in the three nation One Day Cricket tournament.

18 Election Commission announces that elections to Uttar Pradesh and Karnataka assemblies will be held simultaneously along with Lok Sabha elections which will be held on 22, 24 and 26 November.

19 Election Commission lays down a seven point code of conduct for all political parties and candidates contesting ninth Lok Sabha elections.

21 Giant First Stage motor of Polar Satellite Launch Vehicle (PSLV) undergoes successfully ground test at Sriharikota.

— Election Commission recognises Janata Dal, Janata Party and Lok Dal as national parties, freezes Janata Party symbol of *Chakra Haldar* and bans its use in coming general elections.

— Commonwealth Heads of Government, at their summit meeting in Kaula Lumpur, adopt Indian proposal for a planet protection fund on environment.

22 Election Commission allots *Chakra* symbol to Janata Dal for coming general elections.

24 Commonwealth Heads of Government meeting concludes in Kuala Lumpur with a call for greater flow of funds to developing countries.

— Former Chief of Army Staff Gen. G.S. Bewoor, 75, dies in Tamil Nadu.

26 Indira Gandhi Award for National Integration - 1989 goes to P.N. Haksar.

— Intellectual and academics including retired Supreme Court and High Court judges form a group called Independent Initiative to monitor and observe elections to the ninth Lok Sabha.

27 Supreme Court declines to restrain Vishwa Hindu Parishad from going ahead with *Ram Shila* processions to Ayodhya.

30 India tops medal tally with 61 gold, 43 silver and 20 bronze medals in the Fourth South Asian Federation Games at Islamabad.

NOVEMBER

1 Pakistan Prime Minister Benazir Bhutto survives vote of no-confidence in the National Assembly.

— Pakistan win Championship Trophy of MRF Word Criket Series for Nehru Cup in Calcutta.
6 Election Commission cancels the Rajya Sabha biennial poll for two seats in Delhi scheduled for 18 November.
— Major opposition parties decide to boycott election broadcasts and telecasts over AIR and Doordarshan in protest against electronic media's decision to censor their scripts.
7 A special bench of Allahabad High Court rules that the land Vishwa Hindu Parishad barricaded for foundation-laying of the Ram Temple in Ayodhya is under dispute hence *status quo* should be maintained.
11 Sixth meeting of the South Commission, a body of intellectuals and statesmen of Third World countries, begins in New Delhi.
13 At least 73 miners feared trapped following subsidence at a coal mine at Raniganj, West Bengal.
14 Sixth International Children's Film Festival of India opens in New Delhi.
— Year-long Jawaharlal Nehru Centenary Celebrations come to a close with 'Bharatiyam' a spectacular display of dances and drills performance by over 40,000 children, in New Delhi
— Eighth Asian Track and Field Meet opens in New Delhi
— Ninth India International Trade Fair begins in New Delhi.
16 Sixty six of 73 miners trapped inside Mahavir Colliery in Raniganj rescued from their captivity ending 75-hour ordeal.
17 P.T. Usha wins women's 400 metres gold in Asian Track and Field Meet in New Delhi.
18 P.T. Usha sets a new meet record in 200 metres at Asian Track and Field Championship.
19 Prime Minister Rajiv Gandhi announces a special scheme for women *Indira Mahila Yojna* to create awareness of rights and privileges among women as equals in society and nation building endeavour.
— Eighth Asian Track and Field Meet ends in New Delhi. India finish second with a total of seven gold, nine silver and six bronze medals
— Noted exponent of *Kirana Gharana* Hirabai Bododekar, 85, dies in Pune.
21 Indira Gandhi prize for peace, disarmament and development for the year 1989 is awarded to United Nations Children's Emergency Fund (UNICEF) for its outstanding contributions in safeguarding and developing children's health.
— Election Commission clarifies that under the Anti-Defection Law a candidate once elected can not change his party, nor can an independant member join a political party. Any such change would constitute defection.
26 C.P.N. Singh, former Union minister and Congress candidate from Padrauna Lok Sabha constituency, killed in Gorakhpur.
27 President R. Venkataraman dissolves the Eighth Lok Sabha.
— Andhra Pradesh Chief Minister N.T. Rama Rao resigns and recommends dissolution of the Assembly.

28 Dev Narain Dwivedi, 98, noted Hindi writer and freedom fighter, dies in Varanasi.

— Andhra Pradesh Assembly is dissolved

29 Prime Minister Rajiv Gandhi tenders the resignation of his government to President R. Venkataraman.

— Congress Parliamentary Board re-elects Rajiv Gandhi as leader of the party and decides not to stake its claim to form Government notwithstanding the fact that it had emerged as the single largest party in the ninth Lok Sabha poll.

— Uttar Pradesh Assembly is dissolved.

— P. Murari, Secretary, Ministry of Information and Broadcasting is appointed Secretary to President R. Venkataraman.

— Prime Minister Rajiv Gandhi asks Home ministry to withdraw Indira Gandhi assassination conspiracy case against Simranjit Singh Mann elected to the Lok Sabha from Punjab and some others.

30 Shri Veerendra Patil is sworn in Chief Minister of Karnataka.

— Six Congress (I) Chief Ministers of north-eastern states offer their 'constructive support' to the proposed National Front Government at Centre.

DECEMBER

1 Vishwanath Pratap Singh is elected leader of Janata Dal Parliamentary party and later elected leader of National Front Parliamentary party also

— Four left parties --CPM, CPI, RSP and Forward Block along with Bharatiya Janata Party pledge their support to National Front Government from outside

— Punjab Governor S.S Ray orders immediate release of four Akali leaders including former Chief Minister, Prakash Singh Badal and a review of all other pending cases in the state.

— In Sikkim, ministry headed by Nar Bahadur Bhandari is sworn in.

2 Vishwanath Pratap Singh is sworn in Prime Minister of India and Devi Lal Deputy Prime Minister of India, in New Delhi.

— Om Prakash Chautala sworn in Haryana Chief Minister.

— Simranjit Singh Mann, president of Akali Dal (Mann) and his four associates released from Bhagalpur jail after withdrawal of all cases pending against them.

— Ninth Lok Sabha with 524 members is constituted.

3 In Andhra Pradesh, 19-member ministry headed by Dr. M. Chenna Reddy is sworn in.

— Bharatiya Janata Party decides not to join National Front Government at Centre but to continue to support the Government from outside. It takes similar decision also in case of Haryana.

— In his first address to the nation Prime Minister Vishwanath Pratap Singh calls for national effort to solve complex problems of Punjab, Jammu and Kashmir and Ram Janmabhoomi.

4 In Rajasthan, 12-member ministry headed by Haridev Joshi is sworn in.

5 Fifteen Cabinet and two ministers of state are sworn in by President R. Venkataraman in New Delhi as part of the Cabinet headed by Prime Minister Vishwanath Pratap Singh.

— Mulayam Singh Yadav is sworn in Chief Minister of Uttar Pradesh along with 13-member Council of ministers.

— At the end of first Asian Cadet Wrestling Championships in New Delhi, India win five gold medals finishing second behind Iran.

— Rama Krishna Hegde, former Karnataka Chief Minister, appointed Deputy Chairman of Planning Commission with the rank of a Cabinet minister.

6 Prime Minister Vishwanath Pratap Singh allocates portfolios to Union ministers.

— In Bihar, 40-member ministry headed by Dr Jagannath Mishra is sworn in.

7 Prime Minister V.P. Singh and Deputy Prime Minister Devi Lal visit Golden Temple in Amritsar.

— Nirmal Mukarji, former Cabinet secretary, is appointed Governor of Punjab replacing S.S. Ray who resigned.

— Second charge-sheet in Indira Gandhi assassination case is withdrawn and two of the four accused Dalip Singh and Jagmohan Singh discharged and released.

8 Rubaiya Sayeed, youngest daughter of Union Home minister is kidnapped by three unidentified terrorists at Nowgam in Srinagar.

— Soli Jehangir Sorabjee appointed Attorney General of India succeeding K. Parasaran.

— Mangal Singh, 100, former Rajasthan minister and freedom fighter, dies in Varanasi.

— Nathu Ram Mirdha is sworn in Union Cabinet minister in New Delhi.

9 In Madhya Pradesh, 35-member ministry headed by Shyama Charan Shukla is sworn in

— In Orissa, 20-member ministry headed by Hemananda Biswal is sworn in.

10 Madhav Sinh Solanki is sworn in Chief Minister of Gujarat.

12 Retired Air Chief Marshal Arjan Singh appointed Delhi's Lt. Governor succeeding Romesh Bhandari.

— Justice Sabyasachi Mukharji appointed Chief Justice of India to succeed Justice E.S. Venkataramiah.

— Rahul Bajaj and Ratan Tata, chairmen of Indian Airlines and Air India respectively, resign.

13 Rubaiya Sayeed, daughter of Union Home minister released in exchange for five secessionists who were under police custody.

— Union Finance minister Madhu Dandavate announces in New Delhi that 1990-91 Budget would be deferred in view of difficult economic situation.

15 Entire Kashmir Valley is put under indefinite curfew following widespread violence.

18 Newly elected members of ninth Lok Sabha take their oath.
— Prof.M.G.K. Menon, eminent scientist inducted into Union Council of Ministers.
— Justice Sabyasachi Mukharji is sworn in Chief Justice of India in New Delhi.
— Ashok Desai appointed Solicitor General of India.
19 Rabi Ray, veteran socialist leader from Orissa, unanimously elected Speaker of ninth Lok Sabha.
— Ninth Finance Commission submits its final report to President R. Venkataraman.
20 All ministers of coalition ministry in Jammu and Kashmir resign enabling Chief Minister to reconstitute his cabinet
— Ganesh Govind Kharkhanis, 100, veteran Gandhian and freedom fighter, dies in Bijapur
21 National Front Government secures vote of confidence in the Lok Sabha within 30 days limit given by President
— Rajya Sabba unanimously passes the Constitution (Amendment) Bill seeking to extend for another 10 years, reservation for SC/ST in the Lok Sabha and state assemblies.
22 Vinod Pande appointed Cabinet secretary in place of T N Seshan who becomes member of the Planning Commission Planning Commission is also reconstituted with nine full time members.
— Supreme Court upholds constitutional validity of the Bhopal Gas Leak Disaster (Processing of Claims) Act which empowered Central Government to sign Rs 714 crore settlement with Union Carbide.
23 Zeeshan Ali wins national tennis championship for fourth year in succession in Calcutta. Women's title goes to Nandini Krishnan
26 Raghukul Tilak, 89, former Governor of Rajasthan, killed in a road accident near Gurgaon.
— K. Shankar Pillai, 87, internationally acclaimed cartoonist, passes away in New Delhi.
— Prime Minister V.P. Singh informs the Rajya Sabha that Government has decided to debar Swedish arms manufacturing company 'Bofors' from entering into any contract with India for future supply of weapons or weapon systems. He also informs that existing contracts will be reviewed in all aspects.
— Lok Sabha passes the Constitution (62nd Amendment) Bill extending by 10 years reservation of seats for SC/ST in the Lok Sabha and state assemblies along with nomination of representatives of Anglo-Indian community.
27 Jammu and Kashmir cabinet is reconstituted.
— Jnanpith award, 1988 given to well known Telugu writer Dr. C Narayana Reddy.
— Dr. M.F. Lechat, leading Belgian epidemiologist and Dr. R.V. Wardekar, pioneer in introducing leprosy control programme in India, selected for International Gandhi Award-1989.
— Twenty two noted litterateurs are selected for Sahitya Akademi awards for 1989.

28 Akali Dal (Mann) Lok Sabha member Jagdev Singh Khudian is reported missing from Khudian village in Chandigarh.

29 Parliament passes the Constitution (Amendment) Bill to repeal the 59th Amendment of the Statute which enabled proclamation of emergency in Punjab and suspension of the right to life in the state.

31 General Information

TABLE OF PRECEDENCE

(Published on 26 July 1979)

1 President
2 Vice President
3 Prime Minister
4 Governors of states within their respective states
5 Former Presidents
6 Chief Justice of India
Speaker, Lok Sabha
7 Cabinet Ministers of the Union
Chief Ministers of states within their respective states
Deputy Chairman, Planning Commission
Leaders of Opposition in the Rajya Sabha and the Lok Sabha
7A Holders of Bharat Ratna decoration
8 Ambassadors Extraordinary and Plenipotentiary and High Commissioners of Commonwealth countries accredited to India
Chief Ministers of states outside their respective states
Governors of states outside their respective states
9 Judges of Supreme Court
10 Deputy Chairman, Rajya Sabha
Deputy Chief Ministers of states
Deputy Speaker, Lok Sabha
Members of Planning Commission
Ministers of State of the Union and any other Minister in the Ministry of Defence for defence matters
11 Attorney General of India
Cabinet Secretary
Comptroller and Auditor-General of India
Lieutenant Governors within their respective union territories
12 Chiefs of Staff holding the rank of full General or equivalent rank
13 Envoys Extraodinary and Ministers Plenipotentiary accredited to India
14 Chairmen and Speakers of state legislatures within their respective states
Chief Justices of High Courts within their respective jurisdiction states
15. Cabinet Ministers in states within their respective states
Chief Ministers of union territories and Chief Executive Councillor, Delhi, within their respective union territories
Deputy Ministers of the Union
16 Officiating Chiefs of Staff holding the rank of Lieutenant General or equivalent rank
17 Chairman, Central Administrative Tribunal
Chairman, Minorities Commission.
Chairman, Scheduled Castes and Scheduled Tribes Commission
Chairman, Union Public Service Commission.
Chief Election Commissioner.
Chief Justices of High Courts outside their respective jurisdictions
Puisne Judges of High Courts within their respective jurisdictions

18. Cabinet Ministers in states outside their respective states
Chairmen and Speakers of state legislatures outside their respective states
Chairman, Monopolies and Restrictive Trade Practices Commission
Deputy Chairmen and Deputy Speakers of state legislatures within their respective states.
Ministers of State in states within their respective states
Ministers of union territories and Executive Councillors, Delhi, within their respective union territories
Speakers of legislative assemblies in union territories and Chairman of Delhi Metropolitan Council within their respective union territories

19 Chief Commissioners of union territories not having Councils of Ministers within their respective union territories.
Deputy Ministers in states within their respective states.
Deputy Speakers of legislative assemblies in union territories and Deputy Chairman of Metropolitan Council, Delhi, within their respective union territories

20 Deputy Chairmen and Deputy Speakers of state legislatures outside their respective states
Ministers of State in states outside their respective states.
Puisne Judges of High Courts outside their respective jurisdictions

21 Members of Parliament

22 Deputy Ministers in states outside their respective states

23 Army Commanders/Vice Chief of the Army Staff or equivalent in other services.
Chief Secretaries to state governments within their respective states.
Commissioner for Linguistic Minorities.
Commissioner for Scheduled Castes and Scheduled Tribes.
Members, Minorities Commission.
Members, Scheduled Castes and Scheduled Tribes Commission.
Officers of the rank of full General or equivalent rank.
Secretaries to Government of India (including officers holding this office ex-officio).
Secretary, Minorities Commission.
Secretary, Scheduled Castes and Scheduled Tribes Commission.
Secretary to President
Secretary to Prime Minister.
Secretary, Rajya Sabha, Lok Sabha.
Solicitor General.
Vice Chairmen, Central Administrative Tribunals

24 Officers of the rank of Lieutenant General or equivalent rank

25 Additional Secretaries to Government of India.
Additional Solicitor General.
Advocates General of states.
Chairman, Tariff Commission.
Charge d' Affairs and Acting High Commissioners a pied and ad interim.
Chief Ministers of union territories and Chief Executive Councillor, Delhi, outside their respective union territories.
Chief Secretaries of state governments outside their respective states.
Deputy Comptroller and Auditor-General.
Deputy Speakers of legislative assemblies in union territories and Deputy Chairman, Delhi Metropolitan Council outside their respective union territories.
Director, Central Bureau of Investigation.
Director General, Border Security Force.
Director General, Central Reserve Police.
Director, Intelligence Bureau.
Lieutenant Governors outside their respective union territories.
Members, Central Administrative Tribunals
Members, Monopolies and Restrictive Trade Practices Commission
Members, Union Public Service Commission.
Ministers of union territories and Executive Councillors, Delhi, outside their respective union territories.

Principal Staff Officers of the Armed Forces of the rank of Major General or equivalent rank.

Speakers of legislative assemblies in union territories and Chairman of Delhi Metropolitan Council outside their respective union territories

26. Joint Secretaries to Government of India and officers of equivalent rank, Officers of the rank of Major General or equivalent rank

PRESIDENTS OF INDIA

Name	*Tenure*
Dr Rajendra Prasad . . . . (1884-1963)	26 January 1950-13 May 1962
Dr Sarvepalli Radhakrishnan . (1888-1975)	13 May 1962-13 May 1967
Dr Zakir Husain . (1897-1969)	13 May 1967-3 May 1969
Varahagiri Venkatagiri . .. . (1894-1980)	3 May 1969-20 July 1969 (Acting)
Justice Mohammad Hidayatullah (b—1905)	20 July 1969-24 August 1969 (Acting)
Varahagiri Venkatagiri	24 August 1969-24 August 1974
Fakhruddin Ali Ahmed (1905-1977)	24 August 1974-11 February 1977
B.D. Jatti . . . (b—1913)	11 February 1977-25 July 1977 (Acting)
Neelam Sanjiva Reddy (b—1913)	25 July 1977-25 July 1982
Giani Zail Singh (b—1916)	25 July 1982-25 July 1987
R Venkataraman (b—1910)	25 July 1987-Till Date

VICE PRESIDENTS OF INDIA

Name	*Tenure*
Dr. Sarvepalli Radhakrishnan	1952-1962
Dr. Zakir Husain . . .	1962-1967
Varahagiri Venkatagiri .	1967-1969
Gopal Swarup Pathak . . . (1896-1982)	1969-1974
B D Jatti	1974-1979
Justice Mohammad Hidayatullah .	1979-1984
R. Venkataraman	1984-1987
Dr. Shanker Dayal Sharma . . (b—1918)	1987—Till Date

PRIME MINISTERS OF INDIA

Name	*Tenure*
Jawaharlal Nehru . ... (1889-1964)	15 August 1947-27 May 1964
Gulzari Lal Nanda (b—1898)	27 May 1964--9 June 1964 (Acting)
Lal Bahadur Shastri .. .. (1904-1966)	9 June 1964-11 January 1966

Gulzari Lal Nanda	11 January 1966-24 January 1966 (Acting)
Indira Gandhi (1917-1984)	24 January 1966-24 March 1977
Morarji Desai (b—1896)	24 March 1977-28 July 1979
Charan Singh (1902-1987)	28 July 1979-14 January 1980
Indira Gandhi	14 January 1980-31 October 1984
Rajiv Gandhi	31 October 1984-1 December 1989
Vishwanath Pratap Singh (b—1931)	2 December 1989—Till Date

CHIEF JUSTICES OF INDIA

Name	*Tenure*
Harilal J. Kania	26 January 1950-6 November 1951
M. Patanjali Sastri	7 November-3 January 1954
Mehar Chand Mahajan	4 January 1954-22 December 1954
B K Mukherjea	23 December 1954-31 January 1956
S.R. Das	1 February 1956-30 September 1959
Bhuvaneshwar Prasad Sinha	1 October 1959-31 January 1964
P.B. Gajendragadkar	1 February 1964-15 March 1966
A.K Sarkar	16 March 1966-26 June 1966
K Subba Rao	30 June 1966-11 April 1967
K.N. Wanchoo	12 April 1967-24 February 1968
M. Hidayatullah	25 February 1968-16 December 1970
J.C. Shah	17 December 1970-21 January 1971
S M. Sikri	22 January 1971-25 April 1973
A N. Ray	26 April 1973-27 January 1977
M.H. Beg	28 January 1977-21 February 1978
Y V Chandrachud	22 February 1978-11 July 1985
Prafullachandra Natvarlal Bhagwati	12 July 1985--20 December 1986
R.S Pathak	21 December 1986-18 June 1989
E.S. Venkataramiah	19 June 1989-18 December 1989
S Mukharjee	19 December 1989-Till Date

CHIEF ELECTION COMMISSIONERS OF INDIA

Name	*Tenure*
Sukumar Sen	21 March 1950-19 December 1958
K.V.K. Sundaram	20 December 1958-30 September 1967
S.P. Sen Verma	1 October 1967-30 September 1972
Dr. Nagendra Singh	1 October 1972-6 February 1973
T. Swaminathan	7 February 1973-17 June 1977
S.L. Shakdhar	18 June 1977-17 June 1982
R.K. Trivedi	18 June 1982-31 December 1985
R.V.S. Peri Sastri	1 January 1986-Till date

RECIPIENTS OF BHARAT RATNA

Name	*Awarded in*
Dr. Sarvepalli Radhakrishnan (1888-1975)	1954
Chakravarti Rajagopalachari (1878-1972)	1954

Dr. Chandrasekhar Venkat Raman (1888-1970)	1954
Dr. Bhagwan Das (1869-1958)	1955
Dr Mokshagundam Visvesvaraya (1861-1962)	1955
Jawaharlal Nehru (1889-1964)	1955
Govind Ballabh Pant (1887-1961)	1957
Dr Dhondo Keshave Karve (1858-1962)	1958
Dr Bidhan Chandra Roy (1882-1962)	1961
Purushottam Das Tandon (1882-1962)	1961
Dr Rajendra Prasad (1884-1963)	1962
Dr Zakir Husain (1897-1969)	1963
Dr Pandurang Vaman Kane (1880-1972)	1963
Lal Bahadur Shastri (Posthumous) (1904-1966)	1966
Indira Gandhi (1917-1984)	1971
Varahagiri Venkatagiri (1894-1980)	1975
Kumaraswami Kamraj (Posthumous) (1903-1975)	1976
Mary Teresa Bojaxhiu (Mother Teresa) (b-1910)	1980
Acharva Vinoba Bhave (Posthumous)(1895-1982)	1983
Khan Abdul Ghaffar Khan (1890-1988)	1987
Marudu Gopalan Ramachandran (Posthumous) (1917-1987)	1988
Dr Bhim Rao Ramji Ambedkar (Posthumous) (1891-1956)	1990

COMMANDERS-IN-CHIEF

Name	*Tenure*
General Sir Roy Bucher	1 January 1948—14 January 1949
General (now Field Marshal) K M Cariappa	15 January 1949—14 January 1953
General Maharaj Rajendra Sinhji	14 January 1953—31 March 1955

CHIEFS OF ARMY STAFF

Name	*Tenure*
General Maharaj Rajendra Sinhji	1 April 1955—14 May 1955
General S M Srinagesh	15 May 1955—7 May 1957
General K S Thimayya	8 May 1957—7 May 1961
General R N Thapar	8 May 1961—19 November 1962
General J N Choudhuri	20 November 1962—7 June 1966
General P P Kumaramangalam	8 June 1966—7 June 1969
General S H F J Manekshaw	8 June 1969—31 December 1972
Field Marshal S H F J Manekshaw	January 1973—14 January 1973
General G G Bewoor	5 January 1973—31 May 1975
General T N Raina	June 1975—31 May 1978
General O P. Malhotra	June 1978—31 May 1981
General K V Krishna Rao	June 1981—31 July 1983
General A S Vaidya	August 1983—31 January 1986
General K. Sunderji	February 1986—30 April 1988
General V N Sharma	May 1988—30 June 1990
General S F Rodrigues	July 1990—Till date

CHIEFS OF NAVAL STAFF

Name	*Tenure*
Vice Admiral R D Katari	22 April 1958—4 June 1962
Vice Admiral B.S Soman	5 June 1962—3 March 1966
Admiral A.K Chatterjee	4 March 1966—27 February 1970

Admiral S.M. Nanda	March 1970—28 February 1973
Admiral S.N. Kohli . ..	March 1973—28 February 1976
Admiral J L Cursetji	March 1976—28 February 1979
Admiral R L Pereira .	March 1979—28 February 1982
Admiral O S Dawson	March 1982—30 November 1984
Admiral R.H Tahiliani	December 1984—30 November 1987
Admiral J.G Nadkarni	December 1987—Till date

CHIEFS OF AIR STAFF

Name	*Tenure*
Air Marshal Sir Thomas Elmhirst	15 August 1947—21 February 1950
Air Marshal Sir Ronald Lvelaw Chapnam	22 February 1950—9 December 1951
Air Marshal Sir Gerald Gibbs .	10 December 1951—31 March 1954
Air Marshal S Mukherjee . . .	1 April 1954—8 November 1960
Air Marshal A M Engineer	1 December 1960—31 July 1964
Air Chief Marshal Arjan Singh	1 August 1964—15 July 1969
Air Chief Marshal P C Lal	16 July 1969—15 January 1973
Air Chief Marshal O P Mehra .	16 January 1973—1 February 1976
Air Chief Marshal H Moolgavkar	1 February 1976—31 August 1978
Air Chief Marshal I H Latif	1 September 1978—31 August 1981
Air Chief Marshal Dilbagh Singh	1 September 1981—3 September 1984
Air Chief Marshal L M Katre	4 September 1984—1 July 1985
Air Chief Marshal DA La Fontaine	3 July 1985—31 July 1988
Air Chief Marshal S K Mehra	1 August 1988—Till date

WINNERS OF PARAM VIR CHAKRA

Major Somnath Sharma, Kumaon Regiment
Posthumous—November 1947 (Kashmir Operations 1947-48)

2nd Lt. R R Rane, Corps of Engineers
April 1948 (Kashmir Operations 1947-48)

Company Havildar Major Piru Singh, Rajputana Rifles
Posthumous—July 1948 (Kashmir Operations 1947-48)

L/NK Karan Singh, Sikh Regiment
October 1948 (Kashmir Operations 1947-48)

Naik Jadunath Singh, Rajput Regiment
Posthumous—December 1948 (Kashmir Operations 1947-48)

Captain Gurbachan Singh Salaria, Gorkha Rifles
Posthumous—December 1961 (Congo)

Major Dhan Singh Thapa, Gorkha Rifles
October 1962 (Ladakh)

Subedar Joginder Singh, Sikh Regiment
Posthumous—October 1962 (NEFA)

Major Shaitan Singh, Kumaon Regiment
Posthumous—November 1962 (Ladakh)

Comb Abdul Hamid, Grenadiers
Posthumous—September 1965 (Operation against Pakistan)

Lt. Col. A.B Tarapore, Poona Horse
Posthumous—September 1965 (Operation against Pakistan)

Major Hoshiar Singh, Grenadiers
December 1971 (Indo-Pakistan Conflict)

2/Lt Arun Khetarpal, 17 Poona Horse
Posthumous—December 1971 (Indo-Pakistan Conflict)

L/NK Albert Ekka, Brigade of the Guards
Posthumous—December 1971 (Indo-Pakistan Conflict)

Flying Officer Nirmal Jit Singh Sekhon, Flying Branch (Pilot)
Posthumous—December 1971 (Indo-Pakistan Conflict)

Naib Subedar Bana Singh, J and K Light Infantry,
June 1987 (Operations in Siachen Glacier)

Major Ramaswamy Parameswaran, Mehar Regiment
Posthumous-November 1987 (IPKF Operations in Sri Lanka)

HEIGHT OF SOME IMPORTANT INDIAN PEAKS

	Peak	*Height in metre above Mean Sea Level*	
1	K^2	8,611	
2	Kanchenjunga	8,598	
3	Nanga Parbat	8,126	
4	Casher Brum	8,068	In Pak-occupied territory
5	Broad Peak	8,047	-do-
6	Disteghil Sar	7,885	-do-
7	Masher Brum E	7,821	
8	Nanda Devi	7,817	
9	Masher Brum W	7,806	In Pak-occupied territory
10	Rakaposhi	7,788	-do-
11	Kamet	7,756	
12.	Saser Kangri	7,672	
13	Skyang Kangri	7,544	In Pak-occupied territory
14	Sia Kangri	7,422	-do-
15	Chaukhamba (Badrinath Peak)	7,138	
16	Trisul West	7,138	
17	Nunkun	7,135	
18	Pauhunri	7,128	
19	Kangto	7,090	
20	Dunagiri	7,066	

LENGTH OF SOME IMPORTANT INDIAN RIVERS

	River	*Length (km)*
1	Indus	2,900
2	Brahmaputra	2,900
3.	Ganga	2,510
4.	Godavari	1,450
5.	Narmada	1,290
6.	Krishna	1,290
7.	Mahanadi	890
8.	Kaveri	760

NATIONAL HIGHWAYS AND THEIR LENGTHS

	National Highway No	*Route*	*State through which passing and length (km)*
1.	1	Delhi-Ambala-Jalandhar-Delhi-Amritsar-Indo-Pak Border	Delhi (22), Haryana (180), Punjab (254), Total 456
2	1 A	Jalandhar-Madhopur-Jammu-Banihal-Srinagar-Baramula-Uri	Punjab (108), Himachal Pradesh (14), Jammu and Kashmir (54), Total 663
3.	1 B	Batote-Doda-Kishtwar	Jammu and Kashmir (107), Total 107
4	2	Delhi-Mathura-Agra-Kanpur-Allahabad-Varanasi-Mohania-Barhi-Palsit-Baidyabati-Bara-Calcutta	Delhi (19), Haryana (74), Uttar Pradesh (770), Bihar (392), West Bengal (235), Total 1,490
5	3	Agra-Gwalior-Shivpuri-Indore-Dhule-Nasik-Thane-Bombay	Uttar Pradesh (26), Rajasthan (32), Madhya Pradesh (712), Maharashtra (391), Total 1,161
6.	4	Junction with National Highway No 3 near Thane-Pune-Belgaum-Hubli-Bangalore-Ranipet-Madras	Maharashtra (371), Karnataka (658), Andhra Pradesh, (83), Tamil Nadu (123), Total 1,235
7	4 A	Belgaum-Anmod-Ponda-Panaji	Karnataka (82), Goa (71), Total 153
8	4 B	Nhava Sheva-Kalamboli-Palspe	Maharashtra (27) Total 27
9.	5	Junction with National Highway No 6 near Baharagora-Cattack-Bhubaneshwar-Vishakhapatnam-Vijayawada-Madras	Orissa (488), Andhra Pradesh (1,000), Tamil Nadu (45), Total 1,533
10	5 A	Junction with National Highway No 6 near Haridaspur-Paradip Port	Orissa (77), Total 77
11	6	Dhule-Nagpur-Raipur-Sambalpur-Baharagora-Calcutta	Maharashtra (686), Madhya Pradesh (314), Orissa (462), Bihar (22), West Bengal (161), Total 1,645
12	7	Varanasi-Mangawan-Rewa-Jabalpur-Lakhnadon-Nagpur-Hyderabad-Kurnool-Bangalore-Krishnagiri-Salem-Dindigul-Madurai-Cape Comorin (Kanniyakumari)	Uttar Pradesh (128), Madhya Pradesh (504), Maharashtra (232), Andhra Pradesh (753), Karnataka (125), Tamil Nadu (627), Total 2,369
13.	7 A	Palyankotta-Tuticorin Port	Tamil Nadu (51), Total 51
14.	8	Delhi-Jaipur-Ajmer-Udaipur-Ahmadabad-Vadodara-Bombay	Delhi (13), Haryana (101), Rajasthan (688), Gujarat (498), Maharashtra (128), Total 1,428
15.	8A	Ahmadabad-Limbdi-Morvi-Kandla	Gujarat (378), Total 378
16.	8 B	Bamanbore-Rajkot-Porbander	Gujarat (206); Total 206
17	8 C	Chiloda-Gandhinagar-Sarkhej	Gujarat (46); Total 46
18.	9	Pune-Sholapur-Hyderabad-Vijayawads	Maharashtra (336), Karnataka (75), Andhra Pradesh (380); Total 791
19.	10	Delhi-Fazilka-Indo-Pak border	Delhi (18), Haryana (313), Punjab (72), Total 403
20.	11	Agra-Jaipur-Bikaner	Uttar Pradesh (51), Rajasthan (531), Total 582

	National Highway No	*Route*	*State through which passing and length (km)*
21	11 A	Dausa-Manoharpur	Rajasthan (64), Total 64
22	12	Jabalpur-Bhopal Biaora-Rajgarh-Khilchipur-Aklera-Jhalawar-Kota-Bundi-Devli-Tonk-Jaipur	Madhya Pradesh (490), Rajasthan (400), Total 890
23	13	Sholapur-Chitradurga	Maharashtra (43), Karnataka (448), Total 491
24	14	Beawar-Sirohi-Radhanpur	Rajasthan (310), Gujarat (140), Total 450
25	15	Pathankot-Amritsar-Bhatinda-Ganganagar-Bikaner-Jaisalmer-Barmer-Samakhiali (near Kandla)	Punjab (350), Rajasthan (906), Gujarat (270), Total 1,526
26	16	Nizamabad-Mancherel-Jagdalpur	Andhra Pradesh (220), Maharashtra (30), Madhya Pradesh (210), Total 460
27	17	Panvel-Mahad-Panaji-Karwar-Mangalore-Cannanore-Calicut-(Kozhikode)-Ferokh-Kuttipuram-Pudu Ponnani-Chowghat-Cranganur-Junction with National Highway No 47 near Edapally	Maharashtra (482), Goa (139), Karnataka (280), Kerala (368), Total 1,269
28	17 A	Junction with National Highway No 7 near Cortalin-Marmugao	Goa (19), Total 19
29	20	Pathankot-Mandi	Punjab (10), Himachal Pradesh (210), Total 220
30	21	Junction with National Highway No 22 near Chandigarh-Ropar-Bilaspur-Mandi-Kullu-Manali	Chandigarh (24), Punjab (67), Himachal Pradesh (232), Total 323
31	22	Ambala-Kalka-Shimla-Narkanda-Rampur-Chini-Indo-Tibet border near Shipkila	Haryana (30), Punjab (31), Himachal Pradesh (398), Total 459
32	23	Chas-Ranchi-Rourkela-Talcher Junction with National Highway No 42	Bihar (250), Orissa (209), Total 459
33	24	Delhi-Bareilly-Lucknow	Delhi (8), Uttar Pradesh (430), Total 438
34	25	Lucknow-Kanpur-Jhansi-Shivpuri	Uttar Pradesh (237), Madhya Pradesh (82), Total 319
35	26	Jhansi-Lakhnadon	Uttar Pradesh (128), Madhya Pradesh (268), Total 396
36	27	Allahabad-Mangawan	Uttar Praesh (43), Madhya Pradesh (50), Total 93
37	28	Junction with National Highway No. 31	Bihar (259), Uttar Pradesh (311), Total 570

	National Highway No.	*Route*	*State through which passing and length (km)*
		near Barauni-Muzaffarpur-Pipra-Gorakhpur-Lucknow	
38.	28 A	Junction with National Highway No 28 near Pipra-Sagauli-Raxaul-Indo-Nepal border	Bihar (68); Total 68
39	29	Gorakhpur-Ghazipur-Varanasi	Uttar Pradesh (196), Total 196
40	30	Junction with National Highway No 2 near Mohania-Patna-Bakhtiyarpur	Bihar (230), Total 230
41	31	Junction with National Highway No.2 near Barhi-Bakhtiyapur-Mokameh-Purne-Dalkola-Siliguri-Sivok-Cooch Behar-North Salmara-Nalbari-Charali Amingaon-Junction with Nationl Highway No 37	Bihar (437), West Bengal (366), Assam (322), Total 1,125
42	31 A	Sivok-Gangtok	West Bengal (30), Sikkim (62), Total 92
43	31 B	North Salmara-Junction with National Highway No 37 near Jogigopa	Assam (19), Total 19
44	31 C	Near Galgalia-Baghdogra-Chalsa-Nagrakata-Goyerkata-Dalgaon-Hasimara-Rajabhat-Khawa-Kochugaon-Sidili-Junction with National Highway No.31 near Bijni	West Bengal (142), Assam (93), Total 235
45	32	Junction with National Highway No 2 near Gobindpur-Dhanbad-Jamshedpur	Bihar (107), West Bengal (72) Total 179
46	33	Junction with National Highway No.2 near Barhi-Ranchi-Junction with National Highway No 6 near Baharagora	Bihar (352), Total 352
47	34	Junction with National Highway No 31 near Dalkola-Berhampore-Barasat-Calcutta	West Bengal (443), Total 443
48.	35	Barasat-Bangaon-Indo-Bangladesh border	West Bengal (61), Total 61
49	36	Nowgong-Debaka-Dimapur (Manipur Road)	Assam (167), Nagaland (3), Total 170
50	37	Junction with National Highway No. 31 B near Goalpara-Guwahati-Jorabat-Kamargaon-Mukum-Saikhoaghat	Assam (680), Total 680
51	37 A	Kuarital-Junction with National Highway No.52 near Tezpur	Assam (23), Total 23
52.	38	Mukum-Ledo-Lekhapani	Assam (54) Total 54
53	39	Numaligarh-Imphal-Palel-Indo-Burma border	Assam (115), Nagaland (110), Manipur (211), Total 436
54.	40	Jorabat-Shillong-Indo-Bangladesh border near Dawki	Meghalaya (161); Total 161

	National Highway No	*Route*	*State through which passing and length (km)*
55.	41	Junction with National Highway No 6 near Kolaghat-Haldia Port	West Bengal (51), Total 51
56	42	Junction with National Highway No 6 near Sambalpur-Angul-Junction with National Highway No 5 near Cuttack	Orissa (261), Total 261
57.	43	Raipur-Vizianagaram-Junction with National Highway No 5	Madhya Pradesh (316), Orissa (152), Andhra Pradesh (83), Total 551
58	44	Shillong-Passi Badarpur-Agartala	Meghalaya (184), Assam (111), Tripura (200), Total 495
59	45	Madras-Tiruchirapalli-Dindigul	Tamil Nadu (387), Total 387
60	45 A	Link to Pondicherry (Villupuram-Pondicherry)	Tamil Nadu (17) Pondicherry (23), Total 40
61	46	Krishnagiri-Ranipet	Tamil Nadu (132), Total 132
62	47	Salem-Coimbatore-Trichur-Ernakulam-Trivandrum-Cape Comorin (Kanniyakumari)	Tamil Nadu (224) Kerala (416), Total 640
63.	47 A	Junction with National Highway No.47 Willington Island	Kerala (6), Total 6
64	48	Bangalore-Hassan-Mangalore	Karnataka (328), Total 328
65.	49	Cochin-Madurai-Dhanushkodi	Tamil Nadu (290), Kerala (150), Total 440
66	50	Nasik-Junction with National Highway No 4 near Pune	Maharashtra (192), Total 192
67	51	Paikan-Tura-Dalu	Assam (22), Maghalaya (127), Total 149
68	52	Baihata Charali-Tezpur-Bander Dewa-North Lakhimpur-Pasighat-Teza-Sitapani-Junction with National Highway No 37 near Saikhoaghat	Assam (540), Arunachal Pradesh (310), Total 850
69	52 A	Bander Dewa-Itanagar	Assam (5), Arunachal Pradesh (20), Total 25
70.	53	Junction with National Highway No 44 near Badarpur-Jiríghat-Imphal-Silchar	Assam (100), Manipur (220), Total 320
71.	54	Silchar-Aizawl-Tuipang	Assam (45), Mizoram (515), Total 560
72.	54 A	Theriat-Lunglei	Mizoram (9), Total 9
73.	54 B	Venus Saddle Saiha	Mizoram (27), Total 27
74	56	Lucknow-Varanasi	Uttar Pradesh (285), Total 285
75	NE1	Ahmadabad-Vadodara	Gujarat (93), Total 93
		Total length	33,612 km

IMPORTANT LONG DISTANCE TRAINS

	Number and Name	Pairs of stations between which it runs	Distance (km) (approximately)
1.	**6017/6018 Himsagar Express**	*Kanniyakumari-Jammu Tawi (Weekly)*	*3,726*
2.	**2601/2602 Express**	*Guwahati-Trivandrum (Weekly)*	*3,574*
3.	**2649/2650 Express**	*Cochin-Guwahati (Weekly)*	*3,362*
4.	**2625/2626 Kerala Express**	*New Delhi-Trivandrum*	*3,054*
5.	**2673/2674 Express**	*Bangalore-Guwahati (Weekly)*	*3,016*
6.	**5011/5012 Express**	*Gorakhpur-Cochin (Bi-weekly)*	*2,998*
7.	**2603/2604 Express**	*Rajkot-Trivandrum (Weekly)*	*2,734*
8.	**5645/5646 Express**	*Dadar-Guwahati (Weekly)*	*2,510*
9.	**2627/2628 Karnataka Express**	*New Delhi-Bangalore*	*2,444*
10.	**6043/6044 Express**	*Madras-Patna (Weekly)*	*2,305*
11.	**2615/2616 GT Express**	*New Delhi-Madras*	*2,190*
12.	**2621/2622 TN Express**	*New Delhi-Madras*	*2,190*
13.	**1081/1082 Express**	*Bombay VT-Kanniyakumari*	*2,150*
14.	**2971/2972 Express**	*Jammu Tawi-Bombay Central (4 days a week)*	*1,970*
15.	**2859/2860 Gitanjali Express**	*Horwrah-Bombay VT*	*1,968*
16.	**2373/2374 Himgiri Express**	*Howrah-Jammu Tawi (Tri-weekly)*	*1,967*
17.	**2521/2522 NE Express**	*New Delhi-Guwahati*	*1,926*
18.	**2903/2904 Frontier Mail**	*Bombay Central-Amritsar*	*1 900*
19	**7491/7492 Express**	*Tirupathi-Varanasi (Tri-weekly)*	*2,100*
20.	**2925/2926 Paschim Express**	*Bombay Central-Amritsar*	*1,831*
21.	**2815/2816 Express**	*New Delhi-Puri (4 days a week)*	*1,787*
22.	**2135/2136 Netravati Express**	*Bombay VT-Cochin (Bi-weekly)*	*1,852*
23.	**2311/2312 Kalka Mail**	*Howrah-Kalka*	*1,709*
24.	**2723/2724 AP Express**	*New Delhi-Secunderabad*	*1,666*
25.	**2841/2842 Coromandal Express**	*Howrah-Madras*	*1,663*
26.	**2301/2302 Rajdhani Express**	*New Delhi-Howrah (5 days a week)*	*1,441*
27.	**2951/2952 Rajdhani Express**	*New Delhi-Bombay Central (6 days a week)*	*1,384*
28.	**2997/2998 Express**	*Jammu Tawi-Hapa (Weekly)*	*1,990*
29.	**2165/2166 Express (Ratnagiri Express)**	*Bombay VT-Varanasi (Tri-weekly)*	*1,509*

	Number and Name	Pairs of stations between which it runs	Distance (km) (approximately)
30.	6093/6094 Express	Madras-Lucknow (Bi-weekly)	2,071
31.	5089/5090 Express	Gorakhpur-Hyderabad (Bi-weekly)	1,830
32.	6511/6512 Express	Dadar-Madras	1,270
33.	2731/2732 Express	Ahmadabad-Secunderabad	1,228
34.	2981/2982 Sarvodaya Express	Jammu Tawi-Ahmadabad (Bi-weekly)	1,682
35	2119/2120 Konark Express	Bhubaneshwar-Secunderabad	1,144
36	2587/2588 Express	Jammu Tawi-Gorakhpur (Tri-weekly)	1,270
37	8079/8080 Express	Tirupathi-Howrah	1,619
38	2133/2134 Pushpak Express	Bombay VT-Lucknow	1,414
39.	2391/2392 Magadh Express	New Delhi-Patna	992
40.	4067/4068 Malwa Express	New Delhi-Indore	969
41.	2557/2558 Kanchenjunga Express	Howrah-Guwahati	991
42.	2101/2102 Minar Express	Bombay VT-Secunderabad	800
43.	2417/2418 Prayagraj Express	New Delhi-Allahabad	627
44.	2419/2420 Gomti Express	New Delhi-Lucknow	507
45	2479/2480 Taj Express	New Delhi-Gwalior (6 days a week)	317
46.	2639/2640 Brindavan Express	Madras-Bangalore	362
47	2497/2498 Shane-e-Punjab Express	Amritsar-New Dellhi	447
48.	4095/4096 Himalayan Queen	New Delhi-Kalka	268
49.	1007/1008 Deccan Express	Bombay VT-Pune	191
50.	2123/2124 Deccan Queen	Bombay VT-Pune	191
51.	9021/9022 Flying Ranee Express	Bombay Central-Surat	263
52.	2001/2002 Shatabdi Express	New Delhi-Bhopal	705
53.	2003/2004 Shatabdi Express	New Delhi-Lucknow (5 days a week)	507
54.	2005/2006 Shatabdi Express	New Delhi-Chandigarh (6 days a week)	244
METRE GUAGE TRAINS			
55.	2905/2906 Ashram Express	Delhi-Ahmadabad	934
56.	9615/9616 Chetak Express	Delhi-Udaipur	739
57.	2461/2462 Mandor Express	Jodhpur-Delhi	621
58.	2635/2636 Vaigai Express	Madras Egmore-Madurai	492

	Number and Name	Pairs of stations between which it runs	Distance (km) (approximately)
59.	2907/2908 Surya Nagri Express	Ahmadabad-Jodhpur	455
60.	2901/2902 Pink City Express	Delhi-Jaipur	308
61.	6103/6104 Pearl City Express	Madras Egmore-Tuticorin	655
62.	5811/5812 BV Express	Guwahati-Silchar	397
63.	5903/5904 Assam Mail	Guwahati-Tinsukia	514
64.	5313/5314 Marudhar Express	Lucknow-Jodhpur	990

AMENDMENTS TO THE CONSTITUTION

1. *The Constitution (First Amendment) Act, 1950.*—This amendment provided for several new grounds of restrictions to the right to freedom of speech and expression and the right to practise any profession or to carry on any trade or business as contained in article 19 of the Constitution. These restrictions related to public order, friendly relations with foreign States or incitement to an offence in relation to the right to freedom of speech, and to the prescribing of professional or technical qualifications or the carrying on by the State, etc., of any trade, business, industry or service in relation to the right to carry on any trade or business. The amendment also inserted two new articles 31 A and 31 B and the Ninth Schedule to give protection from challenge to land reforms laws

2. *The Constitution (Second Amendment) Act, 1952.*—By this amendment, the scale of representation for election to the Lok Sabha was readjusted.

3. *The Constitution (Third Amendment) Act, 1954.*—This amendment substituted entry 33 of List III (Concurrent List) of the Seventh Schedule to make it correspond to article 369.

4. *The Constitution (Fourth Amendment) Act, 1955.*—Article 31 (2) of the Constitution was amended to re-state more precisely the State's pwoer of compulsory acquisition and requisitioning of private property and distinguish it from cases where the operation of regulatory or prohibitory laws of the State results in "deprivation of property". Article 31 A of the Constitution was also amended to extend its scope to cover categories of essential welfare legislation like abolition of *zamindaris*, proper planning of urban and rural areas and for effecting a full control over the mineral and oil resources of the country, etc. Six Acts were also included in the Ninth Schedule. Article 305 was also amended to save certain laws providing for State monopolies.

5. *The Constitution (Fifth Amendment) Act, 1955.*—This amendment made a change in article 3 so as to empower President to specify a time limit for State Legislatures to convey their views on the proposed Central laws affecting areas, boundaries, etc , of their States.

6. *The Constitution (Sixth Amendment) Act, 1956.*—This amendment made some changes in articles 269 and 286 relating to taxes on sale and purchase of goods in the course of inter-state trade and commerce. A new entry 92A was added to the Union List of the Seventh Schedule to the Constitution.

7. *The Constitution (Seventh Amendment) Act, 1956.*—This amendment Act purported to give effect to the recommendations of the State Reorganisation Commission and the necessary consequential changes. Broadly the then existing states and territories were changed to have two-fold classification of States and Union Territories. The amendments also provided for composition of the House of the People, re-adjustment after every census, provisions regarding the establishment of new High Courts, High Court Judges, etc.

8. *The Constitution (Eighth Amendment) Act, 1960.*—Article 334 was amended with a view to extending the period of reservation of seats for Scheduled Castes and Scheduled Tribes, and to the Anglo-Indian community by nomination, in Parliament and in State Legislatures for a further period of ten years.

9. *The Constitution (Ninth Amendment) Act, 1960.*—The purpose of this amendment is to give effect to the transfer of certain territories to Pakistan in pursuance of the agreement entered into between Governments of India and Pakistan. This amendment was necessitated in view of the judgment of Supreme Court in "In re Berubari Union" by which it was held that any agreement to cede a territory to another country could not be implemented by a law made under article 3 but would only be implemented by an amendment of the Constitution.

10. *The Constitution (Tenth Amendment) Act, 1961.*—This Act amended article 240 and the First Schedule in order to include areas of Dadra and Nagar Haveli as a union territory and to provide for its administration under the regulation making powers of President.

11. *The Constitution (Eleventh Amendment) Act, 1961.*—The purpose of this amendment was to amend articles 66 and 71 of the Constitution to provide that the election of President or Vice President could not be challenged on the ground of any vacancy in the appropriate electoral college.

12. *The Constitution (Twelfth Amendment) Act, 1962.*—This amendment sought to include Goa, Daman and Diu as a Union Territory and to amend article 240 for the purpose.

13. *The Constitution (Thirteenth Amendment) Act, 1962.*—By this amendment, a new article 371A was added to make special provisions with respect to State of Nagaland in pursuance of an agreement between Government of India and Naga People's Convention.

14. *The Constitution (Fourteenth Amendment) Act, 1962.*—By this Act Pondicherry was included in the First Schedule as a Union Territory, and this Act had also enabled the creation of legislature by Parliamentary law for union territories of Himachal Pradesh, Manipur, Tripura, Goa, Daman and Diu and Pondicherry.

15. *The Constitution (Fifteenth Amendment) Act, 1963.*—This amendment provided for increase in the age of retirement of High Court Judge and for the provision of compensatory allowance to judges who are transferred from one High Court to another. The Act also provided for appointment of retired judges to act as judges of High Court. Article 226 was also enlarged to empower High Court to issue directions, orders or writs to any government authority, etc., if the cause of action for the exercise of such power arose in the territories wherein the High Court exercises jurisdiction notwithstanding that the seat of such government authority is not within those territories. The Act also provided for the exercise of powers of Chairmen of the Service Commissions, in their absence, by one of their Members.

16. *The Constitution (Sixteenth Amendment) Act, 1963.*—Article 19

was amended by this Act to impose further restrictions on the rights to freedom of speech and expression, to assemble peaceably and without arms and to form associations, in the interests of sovereignty and integrity of India. The oath of affirmation to be subscribed by candidates seeking election to Parliament and State Legislatures have been amended to include as one of the conditions that they will uphold the sovereignty and integrity of India. The amendments are intended to promote national integration.

17. *The Constitution (Seventeenth Amendment) Act, 1964.*—Article 31A was further amended to prohibit the acquisition of land under personal cultivation unless the market value of the land is paid as compensation and the definition of "estate" as contained in that article had also been enlarged with retrospective effect. The Ninth Schedule had also been amended to include 44 more Acts.

18. *The Constitution (Eighteenth Amendment) Act, 1966.*—Article 3 was amended by this Act to specify that the expression "State" will include a union territory also and to make it clear that the power to form a new state under this article includes a power to form a new state or union territory by uniting a part of a state or a union territory to another state or union territory.

19. *The Constitution (Nineteenth Amendment) Act, 1966.*—Article 324 was amended to effect a consequential change as result of the decision to abolish Election Tribunals and to hear election petitions by High Courts.

20. *The Constitution (Twentieth Amendment) Act, 1966.*—This amendment was necessitated by the decision of Supreme Court in Chadramohan *vs.* State of Uttar Pradesh in which certain appointments of District Judges in State of Uttar Pradesh were declared void by Supreme Court. A new article 233A was added and the appointments made by Governor were validated.

21. *The Constitution (Twenty-first Amendment) Act, 1967.*—By this amendment, Sindhi language was included in the Eighth Schedule.

22. *The Constitution (Twenty-second Amendment) Act, 1969.*—This Act was enacted to facilitate the formation of a new autonomous State of Meghalaya within State of Assam.

23. *The Constitution (Twenty-third Amendment) Act, 1969.*—Article 334 was amended so as to extend the safeguards in respect of reservation of seats in Parliament and State Legislatures for Scheduled Castes and Schedule Tribes as well as for Anglo-Indians for a further period of ten years.

24. *The Constitution (Twenty-fourth Amendment) Act, 1971.*—This amendment was passed in the context of a situation that emerged with the verdict in Golaknath's case by Supreme Court, Accordingly, this Act amended article 13 and article 368 to remove all doubts regarding the power of Parliament to amend the Constitution including the Fundamental Rights.

25. *The Constitution (Twenty-fifth Amendment) Act, 1971.*—This amendment further amended article 31 in the wake of the Bank Nationalisation case. The word 'amount' was substituted in place of

'compensation' in the light of the judicial interpretation of the word 'compensation' meaning "adequate compensation".

26. *The Consitution (Twenty-sixth Amendment) Act, 1971.*—By this amendment, the privy and privileges of the former rulers of Indian States were abolished. This amendment was passed as a result of Supreme Court decision in Madhav Rao's case.

27. *The Constitution (Twenty-seventh Amendment) Act, 1971*—This amendment was passed to provide for certain matters necessitated by the reorganisation of North-Eastern States. A new Article 239B was inserted which enabled the promulgation of Ordinances by Administrators of certain union territories.

28. *The Constitution (Twenty-eighth Amendment) Act, 1972.*—The amendment was enacted to abolish the special privileges of the members of Indian Civil Service in matters of leave, pension and rights as regard to disciplinary matters.

29. *The Constitution (Twenty-ninth Amendment) Act, 1972.*—The Ninth Schedule to the Constitution was amended to include therein two Kerala Acts on land reforms.

30. *The Constitution (Thirtieth Amendment) Act, 1972.*—The purpose of the amendment was to amend article 133 in order to do away with the valuation test of Rs 20,000 as fixed therein, and to provide instead for an appeal to Supreme Court in civil proceedings only on a certificate issued by High Court that the case involves a substantial question of law of general importance and that in the opinion of High Court, the question needs to be decided by Supreme Court.

31. *The Constitution (Thirty-first Amendment) Act, 1973.*—This Act *inter alia* raises the upper limit for the representation of states in the Lok Sabha from 500 to 525 and reducing the upper limit for the representation of union territories from 25 members to 20.

32. *The Constitution (Thirty-second Amendment) Act, 1973.*—This Act provided the necessary constitutional authority for giving effect to the provision of equal opportunities to different areas of State of Andhra Pradesh and for the constitution of an Administrative Tribunal with jurisdiction to deal with grievances relating to public services. It also empowered Parliament to legislate for the establishment of a Central university in that State.

33. *The Constitution (Thirty-third Amendment) Act, 1974.*—By this amendment, articles 101 and 190 were amended in order to streamline the procedure for resignation of Members of Parliament and State Legislatures.

34. *The Constitution (Thirty-fourth Amendment) Act, 1974.*—By this Act twenty more land tenure and land reforms laws enacted by various State Legislatures were included in the Ninth Schedule.

35. *The Constitution (Thirty-fifth Amendment) Act, 1974.*—By this Act, a new article 2A was added thereby conferring on Sikkim the status of an associate State of Indian Union. Consequent amendments were made to articles 80 and 81. A new schedule *i.e.*, Tenth Schedule, was added laying

down terms and conditions of association of Sikkim with the Union.

36. *The Constitution (Thirty-sixth Amendment) Act, 1975.*—This was enacted to make Sikkim a full-fledged State of Indian Union and to include it in the First Schedule to the Constitution and to allot to Sikkim one seat each in the Council of States and in the House of the People Article 2A and the Tenth Schedule inserted by the Constitution (Thirty-fifth Amendment) Act were omitted and articles 80 and 81 were suitably amended

37. *The Constitution (Thirty-seventh Amendment) Act, 1975.*—By this Act, Union Territory of Arunachal Pradesh was provided with a Legislative Assembly. Article 240 of the Constitution was also amended to provide that as in the case of other union territories with legislatures, the power of President to make regulations for the Union Territory of Arunachal Pradesh may be exercised only when the assembly is either dissolved or its functions remain suspended.

38. *The Constitution (Thirty-eighth Amendment) Act, 1975.*—This Act amended articles 123,213 and 352 of the Constitution to provide that the satisfaction of President or Governor contained in these articles would be called in question in any court of law.

39. *The Constitution (Thirty-ninth Amendment) Act, 1975.*—By this Act, disputes relating to the election of President, Vice President, Prime Minister and Speaker are to be determined by such authority as may be determined by Parliamentary law Certain Central enactments were also included in the Ninth Schedule by this Act

40. *The Constitution (Fortieth Amendment) Act. 1976.*—This Act provided for vesting in the Union of all mines, minerals and other things of value lying in the ocean within the territorial waters, or the continental shelf or the exclusive economic zone of India. It further provided that all other resources of the exclusive economic zone of India shall also vest in the Union. This Act also provided that the limits of the territorial waters, the continental shelf, the exclusive economic zone and the maritime zones of India shall be as specified from time to time by or under any law made by Parliament. Also some more Acts were added to the Ninth Schedule.

41. *The Constitution (Forty-first Amendment) Act, 1976.*—By this Act, article 316 was amended to raise the retirement age of Members of State Public Service Commissions and Joint Public Service Commissions from 60 to 62 years.

42. *The Constitution (Forty-second Amendment) Act, 1976.*—This Act made a number of important amendments in the Constitution. These amendments were mainly for purpose of giving effect to the recommendations of Swaran Singh Committee.

Some of the important amendments made are for the purpose of spelling out expressly the high ideals of socialism, secularism and the integrity of the nation, to make the Directive Principles more comprehensive and giving them precedence over those Fundamental Rights which have been allowed to be relied upon to frustrate socio-economic reforms. The amendment Act also inserted a new chapter on the Fundamental Duties of citizens and made special provisions for dealing with anti-national activities, whether by individuals or by associations. The judiciary provisions were also amended by providing for a requirement as to the minimum number of judges for determining question as to the constitutional validity of laws and for a special majority of not less than two-third for declaring any law to be constitutionally invalid.

To reduce the mounting arrears in High Courts and to secure the speedy disposal of service matters, revenue matters and certain other matters of special importance in the context of socio-economic development and progress, this amendment Act provided for the creation of Administrative and other Tribunals for dealing with such matters while preserving the jurisdiction of Supreme Court in regard to such matters under article 136 of the Constitution. Certain modifications in the writ jurisdiction of High Courts under article 226 were also made.

43. *The Constitution (Forty-third Amendment) Act, 1977.*—This Act *inter alia* provided for the restoration of the jurisdiction of Supreme Court and High Courts, curtailed by the enactment of the Constitution (Forty-second Amendment) Act, 1976 and accordingly articles 32A, 131A, 144A, 226A and 228A included in the Constitution by the said amendment, were omitted by this Act. The Act also provided for the omission of article 31D which conferred special powers on Parliament to enact certain laws in respect of anti-national activities.

44. *The Constitution (Forty-fourth Amendment) Act, 1978.*—The right to property which had been the occasion for more than one amendment of Constitution was omitted as a Fundamental Right and it was made only as a legal right. It was, however, ensured that the removal of the right to property from the list of Fundamental Rights would not affect the right of minorities to establish and administer educational institutions of their choice. Article 352 of the Constitution was amended to provide "armed rebellion" as one of the circumstances for declaration of emergency. Internal disturbance not amounting to armed rebellion would not be a ground for the issuance of a Proclamation. The right to personal liberty as contained in articles 21 and 22 is further strengthened by the provision that a law for preventive detention can not authorise, in any case, detention for a longer period than two months unless an Advisory Board has reported that there is sufficient cause for such detention. The additional safeguard has also been provided by the requirement that Chairman of an Advisory Board shall be a serving judge of the appropriate High Court and that board shall be constituted in accordance with the recommendations of the Chief Justice of that High Court.

With a view to avoiding delays, articles 132, 133 and 134 were amended and a new Article 134A was inserted to provide that a High Court should consider the question of granting a certificate for appeal to Supreme Court immediately after the delivery of the judgment, final order or sentence concerned on the basis of an oral application by a party or, if the High Court deems fit so to do, on its own. The other amendments made by the Act are mainly for removing or correcting the distortions which came into the Constitution by reason of the amendments initiated during the period of internal emergency.

45. *The Constitution (Forty-fifth Amendment) Act, 1980.*—This was passed to extend safeguards in respect of reservation of seats in Parliament and State Assemblies for Scheduled Castes, Scheduled Tribes as well as for Anglo-Indians for a further period of ten years.

46. *The Constitution (Forty-sixth Amendment) Act, 1982.*—Article 269 was amended so that the tax levied on the consignment of goods in the course of inter-state trade or commerce shall be assigned to the states. This article was also amended to enable Parliament to formulate by law principles for determining when a consignment of goods takes place in the course of inter-state trade or commerce. A new entry 92B was also inserted in the Union List to enable the levy of tax on the consignment of goods where such consignment takes place in the course of inter-state trade or commerce.

Clause (3) of article 286 was amended to enable Parliament to specify, by law, restrictions and conditions in regard to the system of levy, rates and other incidence of tax on the transfer of goods involved in the execution of a works contract, on the delivery of goods on hire-purchase or any system of payment by instalments, etc.

Article 366 was also suitably amended to insert a definition of "tax on the sale or purchase of goods" to include transfer for consideration of controlled commodities, transfer of property in goods involved in the execution of a works contract, delivery of goods on hire-purchase or any system of payment by instalments, etc.

47. *The Constitution (Forty-seventh Amendment) Act, 1984.*—This amendment is intended to provide for the inclusion of certain land reforms Acts in the Ninth Schedule to the Constitution with a view to obviating the scope of litigation hampering the implementation process of those Acts.

48. *The Constitution (Forty-eighth Amendment) Act, 1984.*—The Proclamation issued by President under article 356 of the Constitution with respect to the State of Punjab can not be continued in force for more than one year unless the special conditions mentioned in clause (5) of the said article are satisfied. As it is felt that the continued force of the said Proclamation is necessary, therefore, the present amendment had been effected so as to make the conditions mentioned in clause (5) of article 356 inapplicable in the instant case.

49. *The Constitution (Forty-ninth Amendment) Act, 1984.*—Government of Tripura recommended that the provisions of the Sixth Schedule to the Constitution may be made applicable to tribal areas of that State. The amendment involved in this Act is intended to give a constitutional security to the autonomous District Council functioning in the State.

50. *The Constitution (Fiftieth Amendment) Act, 1984.*—By article 33 of the Constitution, Parliament is empowered to enact laws determining to

what extent any of the rights conferred by Part III of the Constitution shall, in their application to the members of the Armed Forces or the Forces charged with the maintenance of public order, be restricted or abrogated so as to ensure proper discharge of their duties and maintenance of discipline among them.

It was proposed to amend article 33 so as to bring within its ambit—

(i) the members of the Forces charged with the protection of property beloging to or in the charge or possession of the State; or

(ii) persons employed in any bureau or other organisation established by the State for purposes of intelligence or counter-intelligence; or

(iii) persons employed in, or in connection with, the telecommunication systems set up for the purposes of any Force, bureau or organisation.

Experience has revealed that the need for ensuring proper discharge of their duties and maintenance of discipline among them is of paramount importance in the national interest.

51. *The Constitution (Fifty-first Amendment) Act, 1984.*—Article 330 has been amended by this Act for providing reservation of seats for Scheduled Tribes in Meghalaya, Nagaland, Arunachal Pradesh and Mizoram in Parliament and article 332 has been amended to provide similar reservation in the legislative assemblies of Nagaland and Meghalaya to meet the aspirations of local tribal population.

52. *The Constitution (Fifty-second Amendment) Act, 1985.*—It amends the Constitution to provide that a member of Parliament or a State Legislature who defects or is expelled from the Party which set him up as a candidate in the election or if an independent member of the House joins a political party after expiry of six months from the date on which he takes seat in the House shall be disqualified to remain a member of the House. The Act also makes suitable provisions with respect to splits in and merger of political parties.

53. *The Constitution (Fifty-third Amendment) Act, 1986.*—This has been enacted to give effect to the Memorandum of Settlement of Mizoram which was signed by Government of India and Government of Mizoram with Mizoram National Front on 30 June 1986. For this purpose, a new article 371G has been inserted in the Constitution *inter alia* preventing application of any Act of Parliament in the State of Mizoram in respect of religious or social practices of Mizos, Mizos' customary law and procedure, administration of civil and criminal practice involving decisions according to Mizos' customary law and ownership and transfer of land unless a resolution is passed in the Legislative Assembly to that effect. This, however, will not apply to any Central Act already in force in the State of Mizoram before the commencement of this amendment. The new article also provides that the Legislative Assembly of Mizoram shall consist of not less than forty members.

54. *The Constitution (Fifty-fourth Amendment) Act, 1986.*—The Act increases the salaries of Supreme Court and High Court Judges as follows:

Chief Justice of India	Rs 10,000 per month
Judges of Supreme Court	Rs 9,000 per month
Chief Justice of High Court	Rs 9,000 per month
Judges of High Court	Rs 8,000 per month

This Act amended Part 'D' of the Second Schedule to the Constitution to give effect to the above increases in the salaries of judges and to make an enabling provision in articles 125 and 221 to provide for changes in the salaries of judges in future by Parliament by law.

55. *The Constitution (Fifty-fifth Amendment) Act, 1986.*—This seeks to give effect to the proposal of Government of India to confer statehood on the Union Territory of Arunachal Pradesh and for this purpose, a new article 371H has been inserted which, *inter alia*, confers, having regard to the sensitive location of Arunachal Pradesh, to vest special responsibility on Governor of the new State of Arunachal Pradesh with respect to law and order in the State and in the discharge of his functions, the Governor shall after consulting the Council of Ministers, exercise his individual judgment, as to the action to be taken and this responsibility shall cease when President so directs. The new article also provides that the new Legislative Assembly of the new State of Arunachal Pradesh shall consist of not less than thirty members.

56. *The Constitution (Fifty-sixth Amendment) Act, 1987.*—Government of India has proposed to constitute the territories comprised in Goa District of the Union Territory of Goa, Daman and Diu as the State of Goa and the territories comprised in Daman and Diu districts of that Union Territory as a new Union Territory of Daman and Diu. In this context, it was proposed that the Legislative Assembly of the new State of Goa shall consist of forty members. The existing Legislative Assembly of the Union Territory of Goa, Daman and Diu has thirty elected members and three nominated members. It was intended to make this Assembly with the exclusion of two members representing Daman and Diu districts the provisional Legislative Assembly for the new State of Goa until elections are held on the expiry of the five year term of the existing Assembly. It was, therefore, decided to provide that the Legislative Assembly of the new State of Goa shall consist of not less than 30 members. The special provision required to be made to give effect to this proposal is carried out by this amendment.

57. *The Constitution (Fifty-seventh Amendment) Act, 1987.*—The Constitution (Fifty-first Amendment) Act, 1984 was enacted to provide for reservation of seats in the House of the People for Scheduled Tribes in Nagaland, Meghalaya, Mizoram and Arunachal Pradesh and also for reservation of seats for Scheduled Tribes in the Legislative Assemblies of Nagaland and Meghalaya by suitably amending articles 330 and 332. Even though these states are predominantly tribal, the underlying objective of the aforesaid Act was to ensure that the members of Scheduled Tribes in these areas do not fail to secure a minimal representation because of their

inability to compete with the advanced sections of the people. The Constitution (Fifty-first Amendment) Act, though formally enforced, could not be fully implemented unless parallel action is taken to determine the seats which are to be reserved for Scheduled Tribes in these areas. The number of seats reserved for Scheduled Castes and Scheduled Tribes in the Legislative Assembly of any State under article 332 of the Constitution will have to be determined having regard to the provisions of article 332(3) of the Constitution. However, in view of the historical background with respect to the areas comprised in North-Eastern States, the circumstances obtaining in these areas in the state of development of Scheduled Tribes and other relevant considerations, it was considered necessary to provide for special arrangements with regard to the reservation for Scheduled Tribes in these areas for a temporay period so as to facilitate easy transition of these areas to the normal arrangements as envisaged in the Constitution. Article 332 of the Constitution was further amended for making a temporary provision, until the re-adjustment of seats on the basis of first census after the year 2000 under article 170 of the Constitution for these states, for the determination of the number of seats reserved for Scheduled Tribes. This amendment seeks to provide that if all the seats in the Legislative Asembly of such states in existence on the date of coming into force of this Constitution Amendment Act are held by the members of Scheduled Tribes, all the seats except one shall be reserved for Scheduled Tribes and in any other case such number of seats as bears to the total number of seats a proportion not less than the number of members belonging to Scheduled Tribes in the existing Assembly bears to the total number of seats in the existing Assembly. The Act achieves these objectives.

58. *The Constitution (Fifty-eighth Amendment) Act, 1987.*—There has been a general demand for the publication of authoritative text of the Constitution in Hindi. It is imperative to have an authoritative text of the Constitution for facilitating its use in the legal process. Any Hindi version of the Constitution should not only conform to the Hindi translation published by the Constituent Assembly, but should be in conformity with the language, style and terminology adopted in the authoritative texts of Central Acts in Hindi. The Constitution has been amended to empower President of India to publish under his authority the translation of the Constitution in Hindi signed by the Members of the Constituent Assembly with such modifications as may be necessary to bring it in conformity with the language, style and terminology adopted in the authoritative texts of Central Acts in Hindi language. President has also been authorised to publish the translation in Hindi of every amendment of the Constitution made in English.

59. *The Constitution (Fifty-ninth Amendment) Act, 1988.*—The Act amends article 356 (5) of the Constitution so as to facilitate the extension of a Presidential Proclamation issued under clause (1) of article 356 beyond a period of one year, if necessary up to a period of three years, as permissible under clause (4) of article 356 with respect to the State of Punjab because of the continued disturbed situation there. The Act also amends article 352 of

the Constitution pertaining to the Proclamation of emergency in its application to the State of Punjab and includes "internal disturbance" as one of the grounds for making a Proclamation in respect of the State of Punjab only. As a consequence of amendemnt in article 352, articles 358 and 359 have also been amended. Amendments in articles 352, 358 and 359 in relation to the State of Punjab will be operative only for a period of two years from 30 March 1988, which is the date of commencement of the amendment.

60. *The Constitution (Sixtieth Amendment) Act, 1988.*—The Act amends clause (2) of article 276 of the Constitution so as to increase the ceiling of taxes on professions, trades, callings and employment from two hundred and fifty rupees per annum to two thousand and five hundred rupees per annum. The upward revision of this tax will help state governments in raising additional resources. The proviso to clause (2) has been omitted.

61. *The Constitution (Sixty-first Amendment) Act, 1989.*—The Act provides for reducing voting age from 21 to 18 years by amending article 326 of the Constitution to provide to the unrepresented youth of the country an opportunity to give vent to their feelings and help them become a part of political process.

Appendices

GOVERNMENT OF INDIA

(As on 23 April 1990)

R. Venkataraman	**President**
Dr. Shanker Dayal Sharma	**Vice President**

COUNCIL OF MINISTERS

CABINET MINISTERS

Vishwanath Pratap Singh	Prime Minister and also incharge of the Ministries/Departments of Defence, Personnel, Public Grievances and Pensions, Science and Technology; Atomic Energy; Electronics; Ocean Development, Space and other subjects not allocated to any other Cabinet Minister or Minister of State (Independent charge)
Devi Lal	Deputy Prime Minister and Minister of Agriculture.
Prof. Madhu Dandavate	Minister of Finance.
Mufti Mohammad Sayeed	Minister of Home Affairs.
Ajit Singh	Minister of Industry
Arun Kumar Nehru	Minister of Commerce and Tourism.
I.K. Gujral	Minister of External Affairs.
Arif Mohd Khan	Minister of Energy with additional charge of the Ministry of Civil Aviation.
M.S Gurupadaswamy	Minister of Petroleum and Chemicals.
K.P. Unnikrishnan	Minister of Surface Transport
Dinesh Goswami	Minister of Steel and Mines with additional charge of the Ministry of Law and Justice.
George Fernandes	Minister of Railways.
Murasoli Maran	Minister of Urban Development.
Nathu Ram Mirdha	Minister of Food and Civil Supplies.
Nilamani Routray	Minister of Environment and Forests.
P. Upendra	Minister of Information and Broadcasting and Parliamentary Affairs.
Ram Vilas Paswan	Minister of Labour and Welfare.
Sharad Yadav	Minister of Textiles with additional charge of the Ministry of Food Processing Industries.

MINISTER OF STATE (INDEPENDENT CHARGE)

Manubhai Kotadia	Minister of Water Resources
Janeshwar Mishra	Minister of Communications.
Rashid Masood	Minister of Health and Family Welfare

MINISTERS OF STATE

Smt. Maneka Gandhi	Minister of Environment and Forest.
Prof. M.G.K. Menon	Minister of Science and Technology.
Dr. Raja Ramanna	Minister of Defence.
Chimanbhai Mehta	Minister of Human Resource Development.
Bhajaman Bahera	Minister of Petroleum and Chemicals.
Hari Kishore Singh	Minister of External Affairs.
Upendra Nath Verma	Minister of Rural Development.
Subodh Kant Sahay	Minister of Home Affairs.
Satya Pal Malik	Minister of Parliamentary Affairs and Tourism.
Bhagey Gobardhan	Minister of Planning and Programme Implementation.
Nitish Kumar	Minister of Agriculture and Cooperation
Srikant Jena	Minister of Industry (Department of Small Scale Industry, Agro and Rural Industries).
A Sreedharan	Minister of Commerce.
Ram Pujan Patel	Minister of Food and Civil Supplies

DEPUTY MINISTERS

Ajay Singh	Minister of Railways
Smt. Usha Sinha	Minister of Women and Child Development.
Anil Shastri	Minister of Finance.
Bhakta Charan Das	Minister of Youth Affairs and Sports.
Jagdeep Dhankhar	Minister of Parliamentary Affars.

MEMBERS OF PARLIAMENT

RAJYA SABHA
(As on 16 April 1990)

Chairman: Dr. Shanker Dayal Sharma
Deputy Chairman: Dr (Smt) Najma Heptulla

ANDHRA PRADESH (18)

1. Smt Renuka Chowdhury	TD
2. Prabhakar Rao Kalvala	TD
3. Dr. Yelamanchili Sivaji	TD
4. G. Swamy Naik	Cong (I)
5 Dr Jaipal Reddy	JD
6. Dr. Narreddy Thulasi Reddy	TD
7. Satyanarayana Dronamraju	Cong (I)
8. Kotoiah Pragada	Cong (I)
9. Gopala Rao	TD
10. R.K. Dhawan	Cong (I)
11. Moturu Hanumantha Rao	CPI(M)
12. M.M. Hashim	Cong (I)

13. Mentay Padmanabham	TD
14. Dr. G. Vijaya Mohan Reddy	*TD*
15. Mohd. Khaleelur Rahman	TD
16. T. Chandrasekhar Reddy	Cong (I)
17. Talari Manohar	TD
18. Parvathaneni Upendra	TD

ARUNACHAL PRADESH (I)

19. Vacant

ASSAM (7)

20. Amritlal Basumatary	Cong (S)
21. Badreswar Buragohain	AGP
22. Smt. Bijoya Chakravarty	AGP
23. Dinesh Goswami	AGP
24. Bhubaneshwar Kalita	Cong (I)
25. David Ledger	AGP
26. Nagen Saikia	AGP

BIHAR (22)

27. S.S. Ahluwalia	Cong (I)
28. Ashwani Kumar	BJP
29. Dr. Faguni Ram	Cong (I)
30. Bindeshwari Dubey	Cong (I)
31. Shamim Hashmi	Cong (I)
32. Mahendra Prasad	Cong (I)
33. Sitaram Kesri	Cong (I)
34. Chaturanan Mishra	CPI
35. Kameshwar Paswan	BJP
36. Yashwant Sinha	JD
37 Smt. Manorama Pandey	Cong (I)
38. Rafique Alam	Cong (I)
39. Rajni Ranjan Sahu	Cong (I)
40. Dayanand Sahay	Cong (I)
41. Digvijay Singh	JD
42. Smt. Pratibha Singh	Cong (I)
43. Ram Awadhesh Singh	LD
44. Shankar Dayal Singh	JD
45. Prof. Chandresh P. Thakur	Cong (I)
46. Rameshwar Thakur	Cong (I)
47. Ranjan Prasad Yadav	JD
48. Vacant	

The abbreviations used for Parties—Groups are: Congress Party (I) Cong (I); Janata Dal (JD); Telugu Desam (TD); Communist Party of India (Marxist) CPI (M); Janata Party (Janata); All India Dravida Munnetra Kazhagam (AIADMK); Communist Party of India (CPI); Asom Gana Parishad (AGP); Jammu and Kashmir National Conference (NC); Revolutionary Socialist Party (RSP), Lok Dal (LD); Bharatiya Janata Party (BJP); Muslim League (ML); Forward Block (FB); Kerala Congress (KC); Dravida Munnetra Kazhagam (DMK); Sikkim Sangram Parishad (SSP); All India Majlis-e-Ittehadul Muslimeen (AIMIM); Shiromani Akali Dal (Mann) SAD (Mann); Independent (Ind); Akhil Bharatiya Hindu Maha Sabha (ABHMS), and Gorkha National Liberation Front (GNLF).

GOA (1)

49.	John F.Fernandes	Cong (I)

GUJARAT (11)

50.	Jitendrabhai Labhshanker Bhatt	Cong (I)
51.	Chimanbhai Mehta	JD
52.	Anantrau Devshanker Dave	BJP
53	Ragubhai A. Parmar	Cong (I)
54.	Gopalsinh G Solanki	BJP
55	Vithalbhai M Patel	Cong (I)
56.	Ramsinh Rathwa	Cong (I)
57.	Chhotubhai Patel	Cong (I)
58	P Shiv Shankar	Cong (I)
59	Dineshbhai Trivedi	JD
60	Madhavsinh Salanki	Cong (I)

HARYANA (5)

61.	Smt. Vidya Beniwal	JD
62	Krishan Kumar Deepak	JD
63	Smt Sushma Swaraj	BJP
64	Mohinder Singh Lather	JD
65.	Surender Singh	Cong (I)

HIMACHAL PRADESH (3)

66	Chandan Sharma	Cong (I)
67	Sushil Barongpa	Cong (I)
68	Krishan Lal	BJP

JAMMU AND KASHMIR (4)

69.	Tirath Ram Amla	Cong (I)
70	Ghulam Rasool Matto	NC
71	Shabbir Ahmad Salaria	NC
72	Vacant	

KARNATAKA (12)

73.	Smt Margaret Alva	Cong (I)
74.	Ram Jethmalani	JD
75.	J.P. Javali	JD
76.	Abdul Samad Siddiqui	JD
77.	H. Hanumanthappa	Cong (I)
78.	B.K Hariprasad	Cong (I)
79.	Prabhakar B. Kore	Cong (I)
80.	Prof. I.G. Sanadi	Cong (I)
81.	K.G. Maheswarappa	JD
82.	G.Y. Krishnan	Cong (I)
83.	R.S. Naik	JD
84.	Smt. D.K. Tharadevi	Cong (I)

KERALA (9)

85.	A.K. Antony	Cong (I)
86.	M.A. Baby	CPI (M)

87.	N.E. Balaram	CPI
88.	Arangil Sreedharan	JD
89.	M.M. Jacob	Cong (I)
90	B.V. Abdulla Koya	ML
91.	Thomas Kuthiravattom	KC
92	E. Balanandan	CPI (M)
93.	P.K Kunjachen	CPI (M)

MADHYA PRADESH (16)

94.	Lakkhiram Agarwal	BJP
95	Hansraj Bhardwaj	Cong (I)
96	Ajit P K. Jogi	Cong (I)
97	Kumari Sayeeda Khatun	Cong (I)
98.	Radhakishan Malaviya	Cong (I)
99.	Shivprasad Chanpuria	BJP
100	Suresh Pachouri	Cong (I)
101.	Smt Ratan Kumari	Cong (I)
102.	Sikander Bakht	BJP
103	Satish Kumar Sharma	Cong (I)
104.	Dr Jitendra Kumar Jain	BJP
105	Kailash Narain Sarang	BJP
106.	Surendra Singh Thakur	Cong (I)
107	Ghufran Azam	Cong (I)
108	Atal Bihari Vajpayee	BJP
109	Smt Veena Verma	Cong (I)

MAHARASHTRA (19)

110.	Murlidhar Chandrakant Bhandare	Cong (I)
111.	Jagesh Desai	Cong (I)
112.	S B. Chavan	Cong (I)
113	Dr (Smt) Najma Heptulla	Cong (I)
114	Vithalrao Madhavrao Jadhav	Cong (I)
115	Kumari Chandrika Premji Kenia	Shiv Sena
116	Dr Bapu Kaldate	JD
117	Suresh Kalmadi	Cong (I)
118	Ghulam Nabi Azad	Cong (I)
119.	Kum Saroj Khaparde	Cong (I)
120	A G. Kulkarni	Cong (I)
121	Pramod Mahajan	BJP
122	Bhaskar Annaji Masodkar	Cong (I)
123.	Viren J Shah	BJP
124.	Vishwasrao Ramrao Patil	JD
125.	Smt. Suryakanta Patil	Cong (I)
126.	Naresh C Puglia	Cong (I)
127.	N.K.P. Salve	Cong (I)
128	Vishvjit P. Singh	Cong (I)

MANIPUR (I)

129.	Vacant	

MEGHALAYA (I)

130	G.G. Swell	Hill State Democratic Party

MIZORAM (I)

131. Vacant	

NAGALAND (I)

132. Khyoma Lotha	Cong (I)

ORISSA (10)

133. Basant Kumar Das	JD
134. Smt Mira Das	JD
135 Sarada Mohanty	JD
136 Jagadish Jain	Cong (I)
137 Pravat Kumar Samantaray	JD
138 Basudeb Mohapatra	Cong (I)
139. Kanhu Charan Lenka	Cong (I)
140 Manmohan Mathur	Cong (I)
141 Santosh Kumar Sahu	Cong (I)
142 Kum. Sushila Tiria	Cong (I)

PUNJAB (7)

143 Vacant	
144 Sardar Jagjit Singh Aurora	Akali Dal
145 Vacant	
146 Vacant	
147. Harvendra Singh Hanspal	Cong (I)
148 Vacant	
149 Vacant	

RAJASTHAN (10)

150 Santosh Bagrodia	Cong (I)
151 Dr Abrar Ahmed Khan	Cong (I)
152. Krishna Kumar Birla	Cong (I)
153 Bhuvnesh Chaturvedi	Cong (I)
154 Ramdas Agarwal	BJP
155 Dhuleshwar Meena	Cong (I)
156 Gaj Singh	Ind
157 Kamal Morarka	JD
158. B.L. Panwar	Cong (I)
159. Prof. M.G.K. Menon	JD

SIKKIM (1)

160. Karma Topden	SSP

TAMIL NADU (18)

161. R. Ganeshan *alias* Misa R Ganesham	DMK
162. T.R. Balu	DMK
163. R. T. Gopalan	AIADMK
164. V. Gopalasamy	DMK

165.	S. Madhavan	AIADMK
166.	Pasumpon Tha. Kiruttinan	DMK
167.	A. Nallasivan	CPI(M)
168	Murasoli Maran	DMK
169.	J.S Raju	DMK
170	Smt Jayanthi Natarajan	Cong (I)
171	M Palaniyandi	Cong (I)
172	T.A Mohammed Saqhy	DMK
173.	K.K Veerappan	DMK
174.	Tindivanam G Venkataraman	DMK
175	G Swaminathan	AIADMK
176.	S.K T Ramachandran	Cong (I)
177	S. Viduthalai Virumbi	DMK
178	M. Vincent	AIADMK

TRIPURA (1)

179	Narayan Kar	CPI (M)

UTTAR PRADESH (34)

180.	Mohammad Afzal	JD
181.	Kumari Alia	Cong (I)
182	Mohammed Amin Ansari	Cong (I)
183	Bekal Utsahi	Cong (I)
184	Chowdhary Ram Sewak	Cong (I)
185.	Chaudhary Harmohan Singh	JD
186.	Makhan Lal Fotedar	Cong (I)
187.	Raj Mohan Gandhi	JD
188.	Maulana Obaidullah Khan Azim	JD
189.	Chowdhry Hari Singh	Cong (I)
190.	Smt. Kailashpati	Cong (I)
191.	M S Gurupadaswamy	JD
192.	Syed Sibtey Razi	Cong (I)
193.	Anant Ram Jaiswal	JD
194	Satya Prakash Malaviya	JD
195.	Maulana Asad Madni	Cong (I)
196.	Jagdish Prasad Mathur	BJP
197.	Shiv Pratap Mishra	Cong (I)
198.	Dr Ratnakar Pandey	Cong (I)
199	Smt Satya Bahin	Cong (I)
200	K N. Singh	Cong (I)
201.	Som Pal	JD
202.	Subramaniam Swamy	Janata
203.	Dr Rudra Pratap Singh	Cong (I)
204.	Anand Prakash Gautam	Ind.
205.	Sangh Priya Gautam	BJP
206.	Balram Singh Yadav	Cong (I)
207.	Dr Raja Ramanna	JD
208.	Shanti Tyagi	Cong (I)
209.	Ashok Nath Verma	JD
210.	Kapil Verma	Cong (I)
211.	Virendra Verma	JD
212.	Ram Naresh Yadav	Cong (I)
213.	Ish Dutt Yadav	JD

WEST BENGAL (16)

214. Debabrata Biswas	FB
215 Sunil Basu Ray	CPI (M)
216. Md Salim	CPI (M)
217 Ashis Sen	CPI (M)
218. Tridib Chaudhuri	RSP
219. Gurudas Das Gupta	CPI
220 Dipen Ghosh	CPI (M)
221. Ramnarayan Goswami	CPI (M)
222 Smt. Sarala Maheshwari	CPI (M)
223 Ashoke Kumar Sen	JD
224 Mohammed Amin	CPI (M)
225 Samar Mukherjee	CPI (M)
226 Dr R K Poddar	CPI (M)
227 Ratna Bahadur Rai	CPI (M)
228. Prof Sourendra Bhattacharjee	RSP
229 Sukomal Sen	CPI (M)

UNION TERRITORIES

DELHI (3)

230 Vacant
231. Vacant
232 Vacant

PONDICHERRY (1)

233 V Narayanasamy	Cong (I)

Nominated by President (12)

*234. Syeda Anwara Taimur
235 Smt Amrita Pritam
*236 Bishambhar Nath Pande
*237 Madan Bhatia
*238 Muhammad Yunus
239 Prof (Smt) Asima Chatterjee
240 M F. Husain
*241 Purshottam Kakodkar
*242. Sat Paul Mittal
243 R K Narayan
*244. Thindivanam K Ramamurthy
245. Pt Ravishankar

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*Belong to Cong. (I)

LOK SABHA

(As on 1 January 1990)

Speaker: Rabi Ray
Deputy Speaker: Shivraj V. Patil

State/Constituency	Name of the Member	Party/Group
ANDHRA PRADESH (42)		
1 Adilabad	P Narasa Reddy	Cong (I)
2. Amalapuram (SC)	Kusuma Krishna Murthy	Cong (I)
3. Anantapur	Anantha Venkata Reddy	Cong (I)
4 Ankapalli	Ramakrishna Monathala	Cong (I)
5 Bapatla	Salagala Benjamin	Cong (I)
6. Bhadrachalam (ST)	Smt Kamala Kumari Kariyeddula	Cong (I)
7 Bobbili	Kemburi Rama Mohan Rao	TD
8 Chittoor	Ganendra Reddy	Cong (I)
9 Cuddapah	Y S. Raja Shekhar Reddy	Cong (I)
10. Eluru	Krishna	Cong (I)
11 Guntur	Prof N G Ranga	Cong (I)
12. Hanamkonda	Kamaluddin Ahmed	Cong (I)
13 Hindupur	S Gangadhara	Cong (I)
14 Hyderabad	S S Owaisi	AIMIM
15. Kakinada	Mallipudi M Pallam Raju	Cong (I)
16 Karimnagar	Chokka Rao Juvvadi	Cong (I)
17. Khammam	Jalagam Vengala Rao	Cong (I)
18. Kurnool	Kotla Vijay Bhaskara Reddy	Cong (I)
19 Machilipatnam	Sambasiva Kavuru Rao	Cong (I)
20 Mahabubnagar	Mallikarjun	Cong (I)
21 Medak	Baga Reddy M	Cong (I)
22 Miryalguda	B N Reddy	Cong (I)
23 Nagarkurnool (SC)	Anantha Ramulu Mullu	Cong (I)
24 Nalgonda	Chakilam Srinivas Rao	Cong (I)
25 Nandyal	Bojja Venkata Reddy	Cong (I)
26 Narasapur	B H Vijaya Kumar Raju	TD
27 Narasaraopet	V K Kasu Reddy	Cong (I)
28. Nellore (SC)	P Penchalaiah	Cong (I)
29. Nizamabad	Bala Goud	Cong (I)
30. Ongole	Mekapati Rajamohan Reddy	Cong (I)
31. Parvathipuram(ST)	Satrucharla Vijaya Ramaraju	Cong (I)
32 Peddapalli (SC)	G Venkatswamy	Cong (I)
33. Rajahmundry	Smt Jamuna Juluri	Cong (I)
34 Rajampet	Sai Prathap Annayyagari	Cong (I)
35. Secunderabad	Smt T Manemma	Cong (I)
36 Siddipet (SC)	Nandi Yellaiah	Cong (I)
37. Srikakulam	Dr Viswanatham Kanithi	Cong (I)
38 Tenali	Basavapunnay Singam	Cong (I)
39. Tirupati (SC)	Dr Chinta Mohan	Cong (I)
40. Vijayawada	Smt. Vidya Chennupati	Cong (I)
41. Vishakhapatnam	Smt Uma Gajapathi Raju	Cong (I)
42 Warangal	Surender Reddy Ramashayam	Cong (I)
ARUNACHAL PRADESH (2)		
43. Arunachal East	Laeta Umbrey	Cong (I)
44. Arunachal West	P.K Thungon	Cong (I)
ASSAM (14)		
45 Autonomous Distict (ST)	Vacant	

State/Constituency	Name of the Member	Party/Group
46. Barpeta	Vacant	
47 Dhubri	Vacant	
48. Dibrugarh	Vacant	
49 Guwahati	Vacant	
50 Jorhat	Vacant	
51 Kaliabar	Vacant	
52. Karimganj (SC)	Vacant	
53 Kokrajhar (ST)	Vacant	
54 Lakhimpur	Vacant	
55. Mangaldai	Vacant	
56 Nowgong	Vacant	
57 Silchar	Vacant	
58. Tezpur	Vacant	
BIHAR (54)		
59. Araria (SC)	Sukdeo Paswan	JD
60. Arrah	Rameshwar Prasad	IPF
61 Aurangabad	Ram Naresh Singh	JD
62 Bagaha (SC)	Mahendra Baitha	JD
63 Balia	Surya Narayan Singh	CPI
64. Banka	Pratap Singh	JD
65 Barh	Nitish Kumar	JD
66. Begusarai	Lalit Vijoy Singh	JD
67. Bettiah	Dharmesh Pt Varma	JD
68. Bhagalpur	Chunchun Prasad Yadav	JD
69. Bikramganj	Ram Prasad Singh	JD
70 Buxar	Tej Narayan Singh	CPI
71 Chapra	Lalu Prasad	JD
72 Chatra	Upendra Nath Verma	JD
73. Darbhanga	Shakeelur Rehman	JD
74. Dhanbad	A. K Roy	Marxist Coordination
75. Dumka (ST)	Shibu Soren	JMM
76. Gaya (SC)	Ishwar Chaudhary	BJP
77 Giridih	Ram Das Singh	BJP
78. Godda	Janardan Yadav	BJP
79. Gopalganj	Raj Mangal Mishra	JD
80. Hajipur (SC)	Ram Vilas Paswan	JD
81. Hazaribagh	Yadunath Pandey	BJP
82. Jahanabad	Ramashary Prasad Singh	CPI
83. Jamshedpur	Sailendra Mahato	JMM
84. Jhanjharpur	Devender Prasad Yadav	JD
85. Katihar	Yuvraj	JD
86. Khagaria	Ram Sharan Yadav	JD
87. Khunti (ST)	Karia Munda	BJP
88. Kishanganj	M.J. Akbar	Cong (I)
89. Kodarma	Ritlal Prasad Verma	BJP
90. Lohardaga (ST)	Smt. Sumati Oraon	Cong (I)
91. Madhepura	R.K. Ravi Yadav	JD
92. Madhubani	Bhogendra Jha	CPI
93. Maharajganj	Vacant	

State/Constituency	Name of the Member	Party/Group
94. Monghyr	Dhanraj Singh	JD
95. Motihari	Radhamohan Singh	BJP
96. Muzaffarpur	George Fernandes	JD
97. Nalanda	Ram Swaroop Prasad	Cong (I)
98. Nawada (SC)	Prem Pradeep	CPI (M)
99. Palamau (SC)	Ram Jorawar	JD
100 Patna	Prof. (Dr) Shailendra Nath Shrivastava	BJP
101. Purnea	Taslimuddin	JD
102. Rajmahala (ST)	Simon Marandi	JMM
103. Ranchi	Subodh Kant Sahay	JD
104. Rosera (SC)	Dasai Chowdhary	JD
105. Saharsa	Surya Narayan Yadav	JD
106 Samastipur	Manjai Lal	JD
107. Sasaram (SC)	Chhedi Paswan	JD
108. Sheohar	Hari Kishore Singh	JD
109. Singhbhum (ST)	Bagun Sumbrui	Cong (I)
110. Sitamarhi	Hukumdeo Narayan Yadav	JD
111. Siwan	Janardan Tewari	BJP
112. Vaishali	Smt Usha Sinha	JD
GOA (2)		
113. Marmugao	Vacant	
114. Panaji	Gopalrao Mayekar	MGP
GUJARAT (26)		
115 Ahmadabad	Harin Pathak	BJP
116 Amreli	Manubhai Kotadia	JD
117 Anand	Nathubhai M Patel	BJP
118. Banaskantha	Jayantilal Shah	JD
119 Baroda	Prakash Koko Brahmbhatt	JD
120 Bhavnagar	Shashi Kant Jamod	Cong (I)
121. Broach	Chandubhai Deshmukh	BJP
122. Bulsar (ST)	Arjunbhai Patel	JD
123 Chhota Udaipur (ST)	N. Jamlabhai Rathawa	JD
124 Dhandhuka (SC)	Ratilal Kalidas Verma	BJP
125. Dohad (ST)	Somjibhai Damor	Cong (I)
126. Gandhinagar	Shanker Singh Vaghela	BJP
127. Godhra	Shanti Lal Patel	JD
128. Jamnagar	Chandresh Patel	BJP
129. Junagarh	Govindbhai Shekhda	JD
130. Kaira	Prabhatsinh K. Chauhan	JD
131. Kapandbanj	Gabaji Maganji Thakore	BJP
132. Kuchchh	Babubhai Shah	BJP
133. Mandavi (ST)	Chhitubhai Devjibhai Gamit	Cong (I)
134. Mehsana	Dr. A.K. Patel	BJP
135. Patan (SC)	Khemchandbhai Chavda	JD
136. Porbandar	Balvant Manvar	JD
137. Rajkot	Shivlal Vekaria	BJP
138. Sabarkantha	Maganbhai Patel	JD
139. Surat	Kashiram Rana	BJP
140. Surendranagar	Somalal	BJP

State/Constituency	Name of the Member	Party/Group
HARYANA (10)		
141. Ambala (SC)	Ch Ram Prakash	Cong (I)
142 Bhiwani	Bansi Lal	Cong (I)
143 Faridabad	Bhajan Lal	Cong (I)
144. Hisar	Jai Parkash	JD
145 Karnal	Chiranji Lal Sharma	Cong (I)
146. Kurukshetra	Gurdial Singh Saini	JD
147 Mahendragarh	Rao Birendra Singh	JD
148 Rohtak	Vacant	
149 Sirsa (SC)	Het Ram	JD
150 Sonepat	Kapil Dev Shastri	JD
HIMACHAL PRADESH (4)		
151 Hamirpur	Prof Prem Kumar Dhumal	BJP
152 Kangra	Shanta Kumar	BJP
153 Mandi	Maheshwar Singh	BJP
154 Shimla	K D Sultanpuri	Cong (I)
JAMMU AND KASHMIR (6)		
155 Anantnag	Piyare Lal Handoo	NC
156 Baramulla	Prof Saif-Ud-Din Soz	NC
157 Jammu	Janak Raj Gupta	Cong (I)
158 Ladakh	Mohd Hassan Commander	Ind
159 Srinagar	Mohammad Shafi Bhat	NC
160 Udhampur	Dharam Pal Sharma	Cong (I)
KARNATAKA (28)		
161 Bagalkot	S T Patil	Cong (I)
162 Bangalore North	C K Jaffer Sharief	Cong (I)
163 Bangalore South	R Gundu Rao	Cong (I)
164 Belgaum	S B Sidnal	Cong (I)
165 Bellary	Smt Basavarajeswari	Cong (I)
166 Bidar (SC)	Suryawanshi Narsing	Cong (I)
167. Bijapur	B K Gudadinni	Cong (I)
168 Chamarajanagar (SC)	V Sreenivasa Prasad	Cong (I)
169 Chikballapur	V Krishna Rao	Cong (I)
170. Chikkodi (SC)	B Shankaranand	Cong (I)
171 Chikmagalur	D N Putte Gowda	Cong (I)
172 Chitradurga	C P Mudalagiriyappa	Cong (I)
173. Davangere	Channaiah Odeyar	Cong (I)
174. Dharwad North	D K Naikar	Cong (I)
175. Dharwad South	B M Mujahid	Cong (I)
176 Gulbarga	Dr B G Jawali	Cong (I)
177. Hassan	H C Srikantaiah	Cong (I)
178. Kanakapura	M V Chandrashekhra Murthy	Cong (I)
179. Kanara	G Deveraya Naik	Cong (I)
180. Kolar (SC)	Y Ramakrishna	Cong (I)
181. Koppal	Basavaraj Patil	JD
182. Mandya	G.Madegowda	Cong (I)
183. Mangalore	Janardhana Poojari	Cong (I)

State/Constituency	Name of the Member	Party/Group
184. Mysore	S.D Narasimharaja Wadiyar	Cong (I)
185. Raichur	Ambanna Nayak Dore	Cong (I)
186. Shimoga	T V Chandrashekarappa	Cong (I)
187. Tumkur	G S.Basavaraj	Cong (I)
188 Udupi	Oscar Fernandes	Cong (I)
KERALA (20)		
189 Addor (SC)	Kodikkunnil Suresh	Cong (I)
190 Alleppey	Vakkom Purushothaman	Cong (I)
191. Badagara	K P Unnikrishnan	Cong (S)
192 Calicut	K Muraleedharan	Cong (I)
193 Cannanore	Ramachandran Mullapally	Cong (I)
194 Chirayinkil	T Basheer	Cong (I)
195. Ernakulam	Prof K.V Thomas	Cong (I)
196 Idukki	Mathew K M Palia	Cong (I)
197 Kasaragod	M. Ramanna Rai	CPI (M)
198. Kottayam	Ramesh Chennithala	Cong (I)
199. Majeri	Ebrahim Sulaiman Sait	ML
200 Mavelikara	Prof P J Kurien	Cong (I)
201 Mukundapuram	Prof. Savithri Lakshmanan	Cong (I)
202. Muvattupuzha	P C Thomas	KC (M)
203. Ottapalam (SC)	Dr K R. Narayanan	Cong (I)
204 Palghat	A Vijayaraghavan	CPI (M)
205. Ponnani	G.M Banatwalla	ML
206 Quilon	S Krishan Kumar	Cong (I)
207. Trichur	P A Antony	Cong (I)
208 Trivandrum	A Charles	Cong (I)
MADHYA PRADESH (40)		
209. Balaghat	Kankar Munjare	Ind.
210 Bastar (ST)	Manku Ram Sodhi	Cong (I)
211 Betul	Arif Baig	BJP
212 Bhind	Narsingh Rao Dikshit	BJP
213 Bhopal	Sushil Chandra Varma	BJP
214. Bilaspur	Resham Lal Jangde	BJP
215. Chindwara	Kamal Nath	Cong (I)
216. Damoh	Lokendra Singh	BJP
217 Dhar (ST)	Surajbhanu Solanki	Cong (I)
218 Durg	Purushottam Kaushik	JD
219 Guna	Smt. Vijayaraje Scindia	BJP
220. Gwalior	Madhavrao Scindia	Cong (I)
221 Hoshangabad	Sartaj Singh Chhatwal	BJP
222 Indore	Smt Sumitra Mahajan	BJP
223. Jabalpur	Baburao Paranjpe	BJP
224. Janjgir	Dilip Singh Jueo	BJP
225. Jhabua (ST)	Dileep Singh Bhuria	Cong (I)
226 Kanker (ST)	Arvind Netam	Cong (I)
227 Khajuraho	Kumari Uma Bharti	BJP
228. Khandwa	Amratlal Vallabhdas Tarwala	BJP
229 Khargone	Rameshwar Patidar	BJP
230. Mahasamund	V.C. Shukla	JD
231 Mandla (ST)	Mohan Lal Jhikram	Cong (I)
232. Mandsaur	Dr. Laxminarayan Pandey	BJP

State/Constituency	Name of the Member	Party/Group
233. Morena (SC)	Chhaviram Argal	BJP
234 Raigarh (ST)	Nand Kumar Sai	BJP
235. Raipur	Ramesh Bais	BJP
236. Rajgarh	Pyarelal Khandelwal	BJP
237 Rajnandgaon	Dharmpal Singh Gupta	BJP
238 Rewa	Yamuna Prasad Shastri	JD
239. Sagar (SC)	Shanker Lal Khatiqe	BJP
240 Sarangarh (SC)	Parasram Bharadwaj	Cong (I)
241 Satna	Sukendra Singh	BJP
242. Seoni	Prahlad Singh Patel	BJP
243. Shahdol (ST)	Vacant	
244. Shahjapur (SC)	Phool Chand Verma	BJP
245 Sidhi	Jagannath Singh	BJP
246 Surguja (ST)	Larang Sai	BJP
247 Ujjain (SC)	Satya Narayan Jatiya	BJP
248 Vidisha	Raghavji Savla	BJP
MAHARASHTRA (48)		
249 Ahmednagar	Yashwantrao Gadakh Patil	Cong (I)
250. Akola	Pandurang Phundkar	BJP
251. Amravati	Sudam Deshmukh	CPI
252 Aurangabad	Morehwar Save	Ind
253. Baramati	Shankarrao Patil	Cong (I)
254. Bhandara	Kushal Parasram Bopche	BJP
255. Beed	Babanrao Dhakane	JD
256. Bombay North	Ram Naik	BJP
257. Bombay North Central	Vidyadhar Gokhale	Shiv Sena
258 Bombay North East	Smt Jayawanti N Chandra Mehta	BJP
259 Bombay North West	Sunil Dutt	Cong (I)
260 Bombay South	Murli Sitaram Deora	Cong (I)
261 Bombay South Central	Vamanrao Mahadik	Shiv Sena
262. Buldhana (SC)	Sukhdev Nandaji Kale	BJP
263. Chandrapur	Shantaram Potdukhe	Cong (I)
264 Chimur	Prof Mahadeorao Shiwankar	BJP
265 Dahanu (ST)	Damodhar Shingda	Cong (I)
266 Dhule	R M Bhoye	Cong (I)
267. Erandol	Uttamrao Patil	BJP
268 Hingoli	Uttam Rathod	Cong (I)
269 Ichalkaranji	Rajaram Mane	Cong (I)
270 Jalgaon	Y S Mahajan	Cong (I)
271. Jalna	Pundlik Hari Danwe	BJP
272 Karad	Smt Premalabai Chavan	Cong (I)
273. Khed	Kisan Rao Bankhele	JD
274. Kolaba	A.R Antulay	Cong (I)
275. Kolhapur	Udaysinghrao Gaikwad	Cong (I)
276. Kopargaon	Balasaheb Vikke Patil	Cong (I)
277. Latur	Shivraj V Patil	Cong (I)
278. Malegaon (ST)	Hari Shankar Mahale	JD
279. Nagpur	B L Purohit	Cong (I)
280. Nanded	Venkatesh Nabde	JD
281. Nandurbar	M.H. Gavit	Cong (I)
282. Nasik	Daulatrao Aher	BJP

State/Constituency	Name of the Member	Party/Group
283. Osmanabad	A T. Kamble	Cong (I)
284. Pandharpur	S B. Thorat	Cong (I)
285. Parbhani	Ashok Anandrao Deshmukh	Shiv Sena
286. Pune	V N Gadgil	Cong (I)
287. Rajapur	Prof Madhu Dandavate	JD
288. Ramtek	P V Narasimha Rao	Cong (I)
289. Ratnagiri	Govind Nikam	Cong (I)
290. Sangli	P V Patil	Cong (I)
291. Satara	Prataprao B. Bhosale	Cong (I)
292. Sholapur	Dharmanna Sadul	Cong (I)
293. Thana	Kapse Ram	BJP
294. Wardha	Vasant Sathe	Cong (I)
295. Washim	Anantrao Deshmukh	Cong (I)
296. Yavatmal	U D Patil	Cong (I)
MANIPUR (2)		
297 Inner Manipur	Prof. N Tombi Singh	Cong (I)
298. Outer Manipur (ST)	Prof Meijinung Kamson	Cong (I)
MEGHALAYA (2)		
299. Shillong	Prof Peter G. Marbaniang	Cong (I)
300 Tura	Sanford Marak	Cong (I)
MIZORAM (1)		
301 Mizoram	Dr C Silvera	Cong (I)
NAGALAND (1)		
302. Nagaland	Shikiho Sema	Cong (I)
ORISSA (21)		
303. Aska	A. Narayan Singh Deo	JD
304 Balasore	Samarendra Kundu	JD
305 Berhampur	Gopi Nath Gajapathi	Cong (I)
306. Bhadark (SC)	Mangaraj Mallik	JD
307 Bhubaneshwar	Sivaji Patnaik	CPI (M)
308. Bolangir	Balgopal Mishra	JD
309. Cuttack	Srikanta Jena	JD
310 Deogarh	Ravi Narayan Pani	JD
311. Dhenkanal	Bhajaman Behera	JD
312 Jagatsinghpur	Lokenath Choudhury	CPI
313. Jajpur (SC)	A C. Das	JD
314. Kalahandi	Bhakta Charan Das	JD
315. Kendrapara	Rabi Ray	JD
316. Keonjhar (ST)	Govind Chandra Munda	JD
317. Koraput (ST)	Giridhar Gomango	Cong (I)
318. Mayurbhanj (ST)	Gobardhan Bhagey	JD
319. Nowrangpur (ST)	K. Pradhani	Cong (I)
320. Phulbani (SC)	Nakul Nayak	JD

State/Constituency	Name of the Member	Party/Group
321. Puri	Nilamani Routray	JD
322 Sambalpur	Bhabani Shankar Hota	JD
323. Sudargarh (ST)	Debananda Amat	JD
PUNJAB (13)		
324 Amritsar	Kirpal Singh	Ind
325. Bhatinda (SC)	Sucha Singh	SAD (Mann)
326. Faridkot	Jagdev Singh Khudian	SAD (Mann)
327 Ferozepur	Dhian Singh	Ind
328 Gurdaspur	Smt Sukhbans Kaur	Cong (I)
329 Hoshiarpur	Kamal Chaudhary	Cong (I)
330 Jalandhar	Inder Kumar Gujral	JD
331 Ludhiana	Smt Rajinder Kaur	SAD (Mann)
332 Patiala	Atinder Pal Singh	Ind
333 Phillaur (SC)	Harbhajan Lakha	BSP
334 Ropar (SC)	Smt Bimal Kaur	SAD (Mann)
335. Sangrur	Rajdev Singh	SAD (Mann)
336 Taran Taran	Simranjit Singh Mann	SAD (Mann)
RAJASTHAN (25)		
337. Ajmer	Prof Rasa Singh Rawat	BJP
338 Alwar	Ramji Lal Yadav	JD
339. Banswara (ST)	Heera Bhai	JD
340 Barmer	Kalyan Singh Kalvi	JD
341 Bayana (SC)	Than Singh Jatav	BJP
342. Bharatpur	Vishvendra Singh	JD
343 Bhilwara	Hemendra Singh Banera	JD
344 Bikaner	Sopat Singh Makkasar	CPI (M)
345 Chittorgarh	Mahendra Singh Mewar	BJP
346 Churu	Daulat Ram Saran	JD
347 Dausa	Nathu Singh	BJP
348. Ganganagar (SC)	Bega Ram Chauhan	JD
349. Jaipur	Girdhari Lal Bhargava	BJP
350 Jalore (SC)	Kailash Meghwal	BJP
351. Jhalawar	Smt Vasundhara Rajev	BJP
352 Jhunjhunun	Jagdeep Dhankhar	JD
353 Jodhpur	Jaswant Singh	BJP
354 Kota	Dau Dayal Joshi	BJP
355 Nagaur	Nathu Ram Mirdha	JD
356 Pali	Guman Mal Lodha	BJP
357 Salumber (ST)	Nand Lal Meena	BJP
358 Sawai Madhopur (ST)	Dr Kirodi Lal	BJP
359 Sikar	Devi Lal	JD
360 Tonk (SC)	Gopal Pacherwal	JD
361 Udaipur	Gulab Chand Kataria	BJP
SIKKIM (1)		
362. Sikkim	Nandu Thapa	SSP
TAMIL NADU (39)		
363. Arakkonam	R Jeevarathinam	Cong (I)
364. Chengalpattu	Paneerselvam Kanchi	AIADMK
365. Chidambaram (SC)	Dr. Vallal Peruman	Cong (I)

State/Constituency	Name of the Member	Party/Group
366. Coimbatore	C K. Kuppuswamy	Cong (I)
367. Cuddalore	P R S. Venkatesan	Cong (I)
368. Dharampuri	M.G Sekhar	AIADMK
369 Dindigul	C Srinivasan	AIADMK
370. Gobichettipalayam	P G Narayanan	AIADMK
371. Karur	M. Thambi Durai	AIADMK
372. Krishnagiri	K. Ramamurthy	Cong (I)
373. Madras Central	Era Anbarasu	Cong (I)
374. Madras North	Pandian David	Cong (I)
375. Madras South	Smt. Vyjayanthimala Bali	Cong (I)
376 Madurai	A.G.S. Rambabu	Cong (I)
377. Mayiladuturai	E S M Pakkeer Mohamed	Cong (I)
378. Nagapathinam(SC)	M Selvarasu	CPI
379. Nagarcoil	N Dennis	Cong (I)
380 Nilgiris	R. Prabhu	Cong (I)
381 Palani	Vacant	–
382 Perambalur (SC)	Asokaraj	AIADMK
383. Periyakulam	R. Muthiah	AIADMK
384 Pollachi (SC)	B Raja Ravi Varma	AIADMK
385 Pudukkottai	N Sundararaj	Cong (I)
386 Ramanathapuram	V Rajeshwaran	Cong (I)
387 Rasipuram (SC)	B Devarajan	Cong (I)
388. Salem	P Rangarajan Kumarmanglam	Cong (I)
389 Sivaganga	P Chidambaram	Cong (I)
390 Sivakasi	Dr. K. Kalimuthu	AIADMK
391 Sriporumbuddur (SC)	Smt M Chandrasekhar	Cong (I)
392. Tenkasi (SC)	M Arunachalam	Cong (I)
393 Thanjavur	S Singaravadivel	Cong (I)
394 Tindivaram	R Ramadass	Cong (I)
395. Tiruchendur	R Dhanuskodi Athithan	Cong (I)
396 Tiruchengode	K C Palanisamy	AIADMK
397. Tiruchirapalli	L Adaikala Raj	Cong (I)
398 Tirunelveli	M R K Janarthanan	AIADMK
399 Tirupattur	A. Jaya Mohan	Cong (I)
400 Vandavasi	L Balaraman	Cong (I)
401. Vellore	Abdul Samad	Cong (I)

TRIPURA (2)

State/Constituency	Name of the Member	Party/Group
402. Tripura East (ST)	K.B K Deb Burman	Cong (I)
403 Tripura West	Sontosh Mohan Dev	Cong (I)

UTTAR PRADESH (85)

State/Constituency	Name of the Member	Party/Group
404. Agra	Vjay Singh	JD
405. Akbarpur (SC)	Ram Awadh	JD
406 Aligarh	Satya Pal Malik	JD
407 Allahabad	Janeshwar Misra	JD
408. Almora	Harish Rawat	Cong (I)
409 Amethi	Rajiv Gandhi	Cong (I)
410. Amroha	Har Govind Singh	JD
411. Aonla	Rajveer Singh	BJP
412. Azamgarh	Ram Krishan Yadav	BSP
413. Baghpat	Ajit Singh	JD

State/Constituency	Name of the Member	Party/Group
414. Bahraich	*Arif Mohd Khan*	JD
415. Ballia	Chandra Shekhar	JD
416. Balrampur	Fasiurrenman Munan Khan	Ind
417. Banda	Ram Sajiwan	CPI
418. Bansgaon (SC)	Mahabir Prasad	Cong (I)
419 Bara Banki (SC)	Ram Sagar	JD
420. Bareilly	Santosh Kumar Gangwar	BJP
421 Basti (SC)	Kalpnath Sonkar	JD
422. Bijnor (SC)	Kumari Mayawati	BSP
423. Bilhaur	Arun Kumar Nehru	JD
424 Budaun	Sharad Yadav	JD
425. Bulandshahr	Sarwar Hussain Khan	JD
426 Chail	R N.O Rakesh	Cong (I)
427. Chandauli	K.N. Singh Yadav	JD
428. Deoria	Rajmangal Pande	JD
429. Domariaganj	Brij Bhusan Tiwari	JD
430. Etah	Dr. Mahadeepak Singh Shakya	BJP
431. Etawah	Ram Singh Shakya	JD
432. Faizabad	Mitra Sen Yadav	CPI
433. Farrukhabad	Santosh Bhartiya	JD
434. Fatehpur	Vishwanath Pratap Singh	JD
435 Firozabad (SC)	Ramjilal Suman	JD
436 Gurhwal	C M. Negi	JD
437 Ghatampur (SC)	Kesheri Lal	JD
438 Ghazipur	Jagdish Singh Khushwaha	Ind
439 Ghosi	Kalpnath Rai	Cong (I)
440. Gonda	Anand Singh	Cong (I)
441. Gorakhpur	Abedya Nath	ABHMS
442. Hamirpur	Ganga Charan Lodhi	JD
443 Hapur	K C Tyagi	JD
444. Hardoi (SC)	Vacant	
445. Hardwar (SC)	Jag Pal Singh	Cong (I)
446. Hathras (SC)	Dr. Bangali Singh	JD
447. Jalaoor (SC)	Ram Sewak Bhatia	JD
448. Jalesar	Multan Singh Choudhary	JD
449. Jaunpur	Yadevendra Datt	BJP
450. Jhansi	Rajendra Agnihotri	BJP
451. Kairana	Harpal Singh Panwar	JD
452. Kaiserganj	Rudrasen Chaudhury	BJP
453. Kannauj	Chhotey Singh Yadav	JD
454. Kanpur	Smt. Subhashini Ali	CPI(M)
455. Khalilabad	Ram Prasad Chowdhary	JD
456. Kheria (SC)	Smt Usha Verma	Cong (I)
457. Khurja (SC)	Bhagwan Dass Rathor	JD
458. Lalganj(SC)	Ram Dhan	JD
459. Lucknow	Mandhata Singh	JD
460. Machhlishahr	Shiv Sharan Verma	JD
461. Maharajganj	Harsh Vardhan	JD
462. Mainpuri	Uday Pratap Singh	JD
463. Mathura	Manvendra Singh	JD
464. Meerut	Harish Pal	JD
465. Mirzapur	Yusuf Beg	JD
466. Misrikh (SC)	Ram Lal Rahi	Cong (I)

State/Constituency	Name of the Member	Party/Group
467 Mohanlal Ganj (SC)	Sarju Prasad 'Saroj'	JD
468. Moradabad	Gulam Mohammed Khan	JD
469. Muzaffarnagar	Mufti Mohammed Sayeed	JD
470 Naini Tal	Mahendra Singh Pal	JD
471. Padrauna	Baleshwar Yadav	JD
472 Phulpur	Ram Pujan Patel	JD
473. Pilibhit	Smt. Maneka Gandhi	JD
474 Pratapgarh	Dinesh Singh	Cong (I)
475. Rae Bareli	Smt. Sheila Kaul	Cong (I)
476 Rampur	Zulfiquar Ali Khan	Cong (I)
477 Robertsganj (SC)	Subedar	BJP
478 Saharanpur	Rashid Masood	JD
479. Saidpur (SC)	Ram Sagar	BJP
280 Salempur	Harikewal Prasad	JD
481 Sambhal	S.P. Yadav	JD
482 Shahabad	Dharmgaj Singh	Cong (I)
483 Shajahanpur	Yadav Satya Pal Singh	JD
484 Sitapur	Dr. Rajendra Kumari Bajpai	Cong (I)
485 Sultanpur	Ram Singh	JD
486 Tehri Garhwal	Brahm Dutt	Cong (I)
487 Unnao	Anwar Ahmad	JD
488 Varanasi	Anil K. Shastri	JD

WEST BENGAL (42)

State/Constituency	Name of the Member	Party/Group
489 Alipurduars (ST)	Pius Tiraky	RSP
490. Arambagh	Anil Basu	CPI (M)
491. Asansol	Haradhan Roy	CPI (M)
492 Balurghat (SC)	Palas Barman	RSP
493 Bankura	Acharia Basudeb	CPI (M)
494 Barasat	Chitta Basu	FB
495 Barrackpore	Tarit Baran Topdar	CPI (M)
496 Basirhat	Manoranjan Sur	CPI
497 Berhampore	Nani Bhattacharya	RSP
498 Birbhum (SC)	Dr Ramachandra Dome	CPI (M)
499 Bolpur	Somnath Chatterjee	CPI (M)
500 Burdwan	Dr. Sudhir Ray	CPI (M)
501 Calcutta North East	Ajit Kumar Panja	Cong (I)
502. Calcutta North West	Debi Prasad Pal	Cong (I)
503. Calcutta South	Dr. Biplab Dasgupta	CPI (M)
504. Contai	Sudhir Giri	CPI (M)
505. Cooch Behar (SC)	Amar Roy Pradhan	FB
506. Darjiling	Inder Jit	GNLF
507. Diamond Harbour	Amal Datta	CPI (M)
508. Dum Dum	Nirmal Kanti Chatterjee	CPI (M)
509. Durgapur	Vacant	
510. Hugli	Rupchand Pal	CPI (M)
511. Haora	Prof. Susanta Chakravorty	CPI (M)
512. Jadavpur	Dr. Malini Bhattacharya	CPI (M)
513. Jalpaiguri	Manik Sanyal	CPI (M)
514. Jangipur	Zainal Abedin	CPI (M)
515. Jhargram (ST)	Matilal Hansda	CPI (M)
516. Joynagar (SC)	Sanat Kumar Mandal	RSP

State/Constituency	Name of the Member	Party/Group
517. Katwa	Saifuddin Choudhury	CPI (M)
518 Krishnanagar	Ajoy Mukhopadhyay	CPI (M)
519 Malda	A B A Ghani Khan Choudhury	Cong (I)
520 Mathurapur (SC)	Radhika Ranjan Pramanik	CPI (M)
521 Midnapore	Indrajit Gupta	CPI
522 Murshidabad	Syed Masudal Hossain	CPI (M)
523. Nabadwip (SC)	Dr Asim Bala	CPI (M)
524 Panskura	Smt Geeta Mukherjee	CPI
525 Purulia	Chitta Rajan Mahata	FB
526 Raiganj	Golam Yazdani	Cong (I)
527 Serampore	Sudarsan Ray Chaudhuri	CPI (M)
528 Tamluk	Satyagopal Misra	CPI (M)
529. Uluberia	Hannan Mollah	CPI (M)
530 Vishnupur (SC)	Sukhendu Khan	CPI (M)

UNION TERRITORIES

ANDAMAN AND NICOBAR ISLANDS (1)

531 Andaman and Nicobar Islands	Manoranjan Bhakta	Cong (I)

CHANDIGARH (1)

532 Chandigarh	Harmohan Dhawan	JD

DADRA AND NAGAR HAVELI (1)

533 Dadra and Nagar Haveli (ST)	Dalkar Mohan Bhai Sanjibhai	Ind

DAMAN AND DIU (1)

534 Daman and Diu	Tandel Devji Jogibhai	Ind

DELHI (7)

535. Chandni Chowk	Jai Prakash Agarwal	Cong (I)
536 Delhi Sadar	Prof Vijay Kumar Malhotra	BJP
537 East Delhi	H K L Bhagat	Cong (I)
538 Karol Bagh (SC)	Kalka Dass	BJP
539 New Delhi	L K Advani	BJP
540 Outer Delhi	Tarif Singh	JD
541 South Delhi	Madan Lal Khurana	BJP

LAKSHADWEEP (1)

542. Lakshadweep (ST)	P M Sayeed	Cong (I)

PONDICHERRY (1)

543. Pondicherry	P Shanmugam	Cong (I)

*ANGLO—INDIANS (2)**

544. Nominated
545. Nominated

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* Nominated by President of India under Article 331 of the Constitution.

CIVILIAN AWARDS ANNOUNCED ON 26 JANUARY 1989

Bharat Ratna	The award is given for exceptional work for the advancement of art, literature and science and in recognition of public service of the highest order
Recipients	—
Padma Vibhushan	The award is given for exceptional and distinguished service in any field including service rendered by Government servants
Recipients	1 Ustad Ali Akbar Khan 2 Dr Monkombu Sambasivan Swaminathan 3 Umashankar Dikshit
Padma Bhushan	The award is given for distinguished service of high order in any field including service rendered by Government servants
Recipients	1. Smt Anna Rajam Malhotra 2 Dr Ashes Prosad Mitra 3 Dr (Smt) Banoo Jahangir Coyaji 4 (Late) Lord Fenner Brockway 5 Smt Girija Devi 6. Girilal Jain 7 Kattingeri Krishna Hebbar 8 Lakshman Singh 9 Prof Mukut Vehari Mathur 10. Dr Narinder Singh Randhawa 11 Dr Prakash Narain Tandon 12 Rustomji Hormusji Mody 13 Suresh Shankar Nadkarni 14 Yoshio Sakurauchi
Padma Shri	The award is given for distinguished service in any field including service rendered by Government servants.
Recipients	27

GALLANTRY AWARDS

The following gallantry and defence distinguished service awards were announced during the period 27 January 1988 to 26 January 1989:

GALLANTRY AWARDS

Maha Vir Chakra	1 (Posthumous)
Kirti Chakra	11 (8 Posthumous)
Vir Chakra	30 (13 Posthumous)
Shaurya Chakra	21 (10 Posthumous)

DEFENCE DISTINGUISHED SERVICE DECORATIONS

Sarvottam Yuddh Seva Medal	1
Param Vishisht Seva Medal	15
Bar to Param Vishisht Seva Medal	1
Uttam Yuddh Seva Medal	6
Ati Vishisht Seva Medal	28 (1 Posthumous)
Bar to Ati Vishisht Seva Medal	3
Yuddh Seva Medal	19 (1 Posthumous)

Vishisht Seva Medal	65
Bar to Vishisht Seva Medal	3
Sena Medal	82 (27 Posthumous)
Bar to Sena Medal	3
Nao Sena Medal	18
Vayu Sena Medal	27 (1 Posthumous)
Mention-in-Despatches	62 (8 Posthumous)

LALIT KALA AKADEMI AWARDS 1989

C.D. Mistry	Painting	*Mahashaku*
Nareen Nath	Painting	*Ragini-1*
Kum. Kiran Murdia	Painting	*Haritima*
Ramaharijena	Painting	*Armenia-88-1*
K.Jayapalapanicker	Painting	*Measure(C)*
Milan Das	Painting	*Pig (Series) No.30*
Anis Farooqi	Painting	*Patronage*
Satish Chandra	Painting	*Landscape No 3*
Sidhartha Ghosh	Graphic	*Trinity*
S. Murugesan	Sculpture	*Pibroch-III*

LALIT KALA AKADEMI AWARDS 1990

Tapan Bhowmik	Graphic	*Reflection*
Amitava Bhowmick	Sculpture	*Priest Heads*
Valsan Kolleri	Sculpture	*"Bronze Age 1 X"*
Pradeep Kumar Saxena "Kukkoo"	Sculpture	*Grey Hair Queen*
Anil Kumar	Sculpture	*Two Tortoise*
Smt. Gogi Saroj Pal	Painting	*"Sawavambarani"*
Jagdish Chander	Painting	*In the Realm of Reality*
Mahendra Kadia	Painting	*Bird's No.3*
K. Rajaiah	Painting	*"Risky Life"*
'Deven' D.B. Seth	Painting	*Morning Movement*

SANGEET NATAK AKADEMI AWARDS 1989

MUSIC

Jitendra Abhisheki.	*Hindustani Vocal*
J. Amjad Ali Khan	*Hindustani Instrumental - Sarod*
Balram Pathak	*Hindustani Instrumental - Sitar*
Anant Lal	*Hindustani Instrumental - Shehnai*
Thitta Krishna Iyengar	*Carnatic—Vocal*
R.K. Venkatarama Sastry	*Carnatic Instrumental - Violin*
Sikkil Sisters (Kunjumani and Neela)	*Carnatic Instrumental - Flute*
Vanraj Bhatia	*Creative*
Rajen Pam	*Tribal Music of Assam*

Ghulam Hassan Sofi	*Folk Music of Jammu and Kashmir*
Smt. Madan Bala Sindhu	*Folk Music of Punjab*

DANCE

V.S. Muthuswami Pillai	*Bharatanatyam*
Oyoor Kochu Govinda Pillai	*Kathakali*
C. Zakkariya	*Tribal Dance of Lakshadweep*
Smt. Maya Rao	*Creative*

THEATRE

G.B. Joshi	*Playwriting - Kannada*
Mahesh Elkunchwar	*Playwriting - Marathi*
Bibhas Chakravarty	*Direction*
Sekhar Chatterjee	*Acting - Bengali*
Ms. Surekha Sikri	*Acting - Hindi*
G.N. Dasgupta	*Lighting*
Tula Ram	*Swang of Haryana*
Purisai Kannappa Thambiram	*Therukkoothu of Tamil Nadu*
Giriraj Prasad	*Nautanki*

FELLOWSHIP

Ms. Lata Mangeshkar

SAHITYA AKADEMI AWARDS 1989

Author	Work	Language
Hiren Gohain	*Asamiya Jatiya Jiwanat Mahapurusiva Parampara* (Essays)	Assamese
Sirshendu Mukherjee	*Manab Zamin* (Novel)	Bengali
Mohanlal Sapolia	*Sodh Samunderen Di* (Poems)	Dogri
Amitav Ghosh	*The Shadow Lines* (Novel)	English
Joseph Mecwan	*Angaliat* (Novel)	Gujarati
Kedarnath Singh	*Akaal Main Saras* (Poems)	Hindi
H.M. Nayak	*Samprathi* (Belles Lettres)	Kannada
Pran Kishore	*Sheen Te Watpoud* (Novel)	Kashmiri
C.F.D. Costa	*Soshyache Kan* (Poems)	Konkani
(Late) Kanchinath Jha 'Kiran'	*Parashar* (Epic)	Maithili
Olappamanna	*Nizhalaana* (Poems)	Malayalam
Nilbir Sharma Shastry	*Tatkhraba Punsi Leipul* (Short stories)	Manipuri

(Late) Prabhakar Urdhwareshe	*Haravlele Diwas* (Autobiography)	Marathi
Tulasi Bahadur Chhetri	*Karna Kunti* (Epic)	Nepali
Bhanuji Rao	*Nai Aara Pari* (Poems)	Oriya
Tara Singh Kamal	*Kahkshan* (Poems)	Punjabi
Yadvendra Sharma 'Chandra'	*Jamaro* (Short stories)	Rajasthani
Rama Karam Sharma	*Sandhya* (Poems)	Sanskrit
M.Kamal	*Bahi-Ja-Warse* (Poems)	Sindhi
La Sa Ramamirutham	*Chinda Nadhi* (Autobiographical essays)	Tamil
S.V. Joga Rao	*Mani Pravalamu* (Essays)	Telugu
Surender Prakash	*Baaz Govee* (Short stories)	Urdu

LAWS ENACTED BY PARLIAMENT IN 1989

1. The Representation of the People (Amendment) Bill, 1989 (Act No. 1 of 1989).
2. The Narcotic Drugs and Psychotropic Substances (Amendment) Bill, 1989 (Act No. 2 of 1989).
3. The Direct Tax Laws (Amendment) Bill, 1989 (Act No. 3 of 1989).
4. The Constitution (Sixty-first Amendment) Bill, 1989 (Act No. 4 of 1989).
5. The Appropriation (Vote on Account) Bill, 1989 (Act No. 5 of 1989).
6. The Appropriation Bill, 1989 (Act No. 6 of 1989).
7. The Appropriation (Railways) Bill, 1989 (Act No 7 of 1989).
8. The Appropriation (Railways) No. 2 Bill, 1989 (Act No 8 of 1989).
9. The Punjab Appropriation Bill, 1989 (Act No. 9 of 1989).
10. The Punjab Appropriation (Vote on Account) Bill, 1989 (Act No. 10 of 1989).
11. The Delhi Municipal Laws (Amendment) Bill, 1989 (Act No. 11 of 1989).
12. The Income-tax (Amendment) Bill, 1989 (Act No 12 of 1989).
13. The Appropriation (No. 2) Bill, 1989 (Act No. 13 of 1989).
14. The Finance Bill, 1989 (Act No. 14 of 1989).
15. The Appropriation (Railways) No. 3 Bill, 1989 (Act No. 15 of 1989).
16. The Chandigarh Disturbed Areas (Amendment) Bill, 1989 (Act No. 16 of 1989).
17. The Terrorist and Disruptive Activities (Prevention) Amendment Bill, 1989 (Act No. 17 of 1989).
18. The Union Duties of Excise (Distribution) Amendment Bill, 1989 (Act No. 18 of 1989).
19. The Additional Duties of Excise (Goods of Special Importance) Amendment Bill, 1989 (Act No. 19 of 1989).
20. The Appropriation (No. 3) Bill, 1989 (Act No. 20 of 1989).

21. The Central Industrial Security Force (Amendment) Bill, 1989. (Act No. 21 of 1989).
22. The Representation of the People (Amendment) Bill, 1989 (Act No. 22 of 1989).
23. The Punjab Pre-emption (Chandigarh and Delhi Repeal) Bill, 1989 (Act No. 23 of 1989).
24. The Assam University Bill, 1989 (Act No. 24 of 1989).
25. The Railways Bill, 1989 (Act No. 25 of 1989).
26. The Delhi Motor Vehicles Taxation (Amendment) Bill, 1989 (Act No. 26 of 1989).
27. The Punjab Appropriation (No. 2) Bill, 1989 (Act No. 27 of 1989).
28. The Appropriation (No. 4) Bill, 1989 (Act No. 28 of 1989).
29. The Karnataka Appropriation Bill, 1989 (Act No. 29 of 1989).
30. The Employees' State Insurance (Amendment) Bill, 1989 (Act No. 30 of 1989).
31 The Salary, Allowances and Pension of Members of Parliament (Amendment) Bill, 1989 (Act No. 31 of 1989).
32. The Working Journalists and Other Newspaper Employees (Conditions of Service) and Miscellaneous Provisions (Amendment) Bill, 1989 (Act No. 32 of 1989).
33. The High Court and Supreme Court Judges (Conditions of Service) Amendment Bill, 1989 (Act No. 33 of 1989).
34. The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Bill, 1989 (Act No. 34 of 1989).
35. The Appropriation (No. 5) Bill, 1989 (Act No. 35 of 1989).
36. The Nagaland University Bill, 1989 (Act No. 36 of 1989).
37. The Direct Tax Laws (Second Amendment) Bill, 1989 (Act No. 37 of 1989).
38. The Warehousing Corporations (Amendment) Bill, 1989 (Act No. 38 of 1989).
39. The General Insurance Business (Nationalisation) Amendment Bill, 1989 (Act No. 39 of 1989).
40. The Small Industries Development Bank of India Bill, 1989 (Act No. 40 of 1989).
41. The Customs (Amendment) Bill, 1989 (Act No. 41 of 1989).

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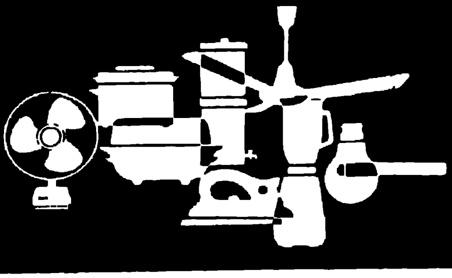

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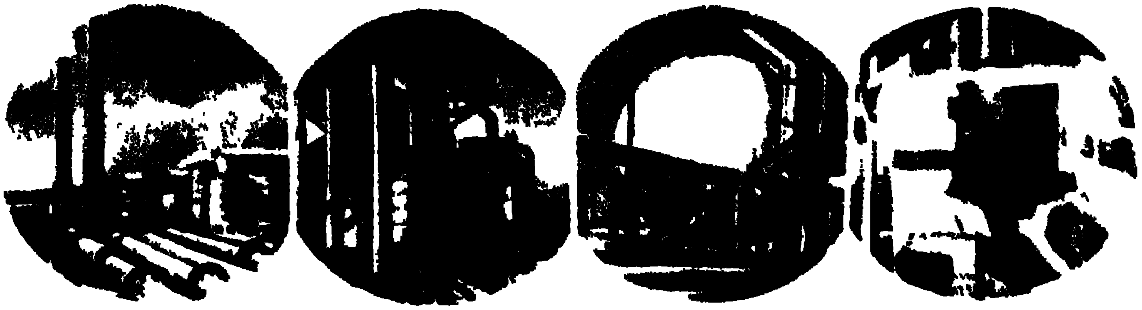

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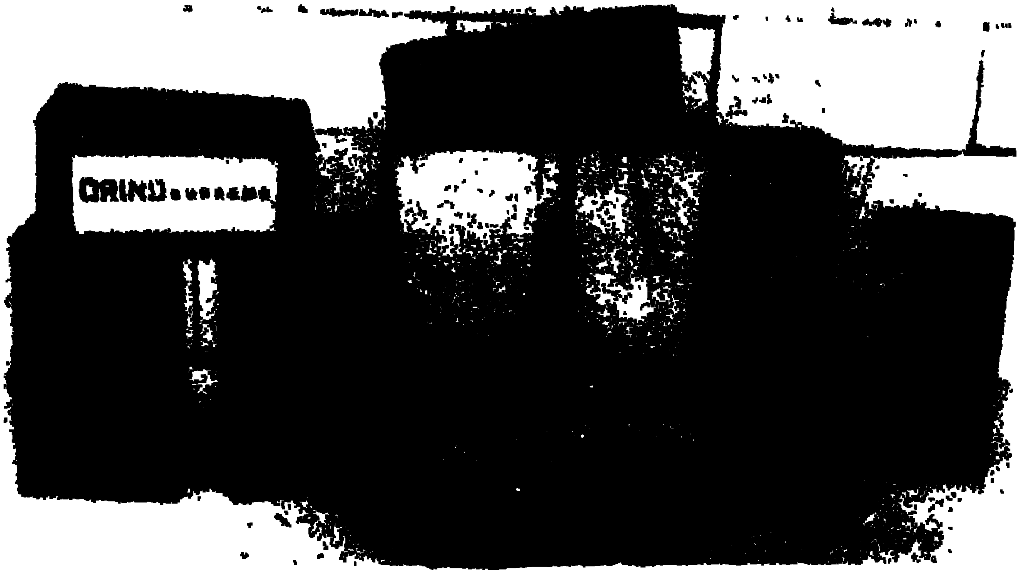

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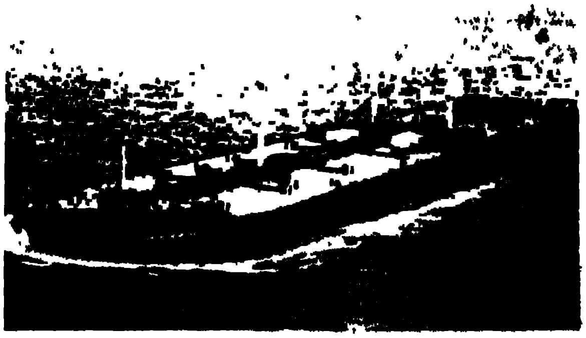

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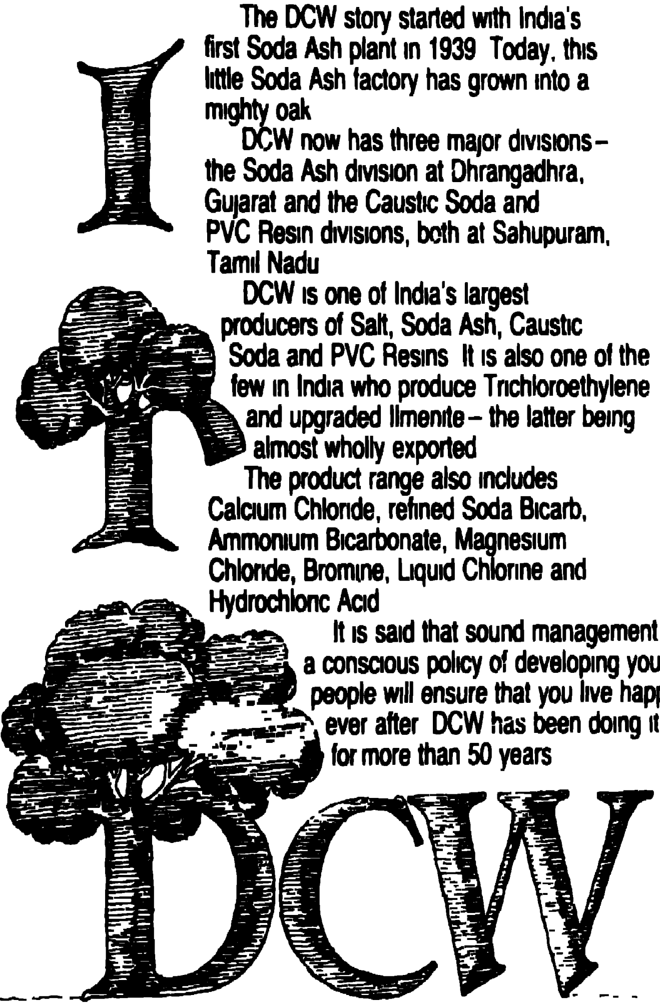

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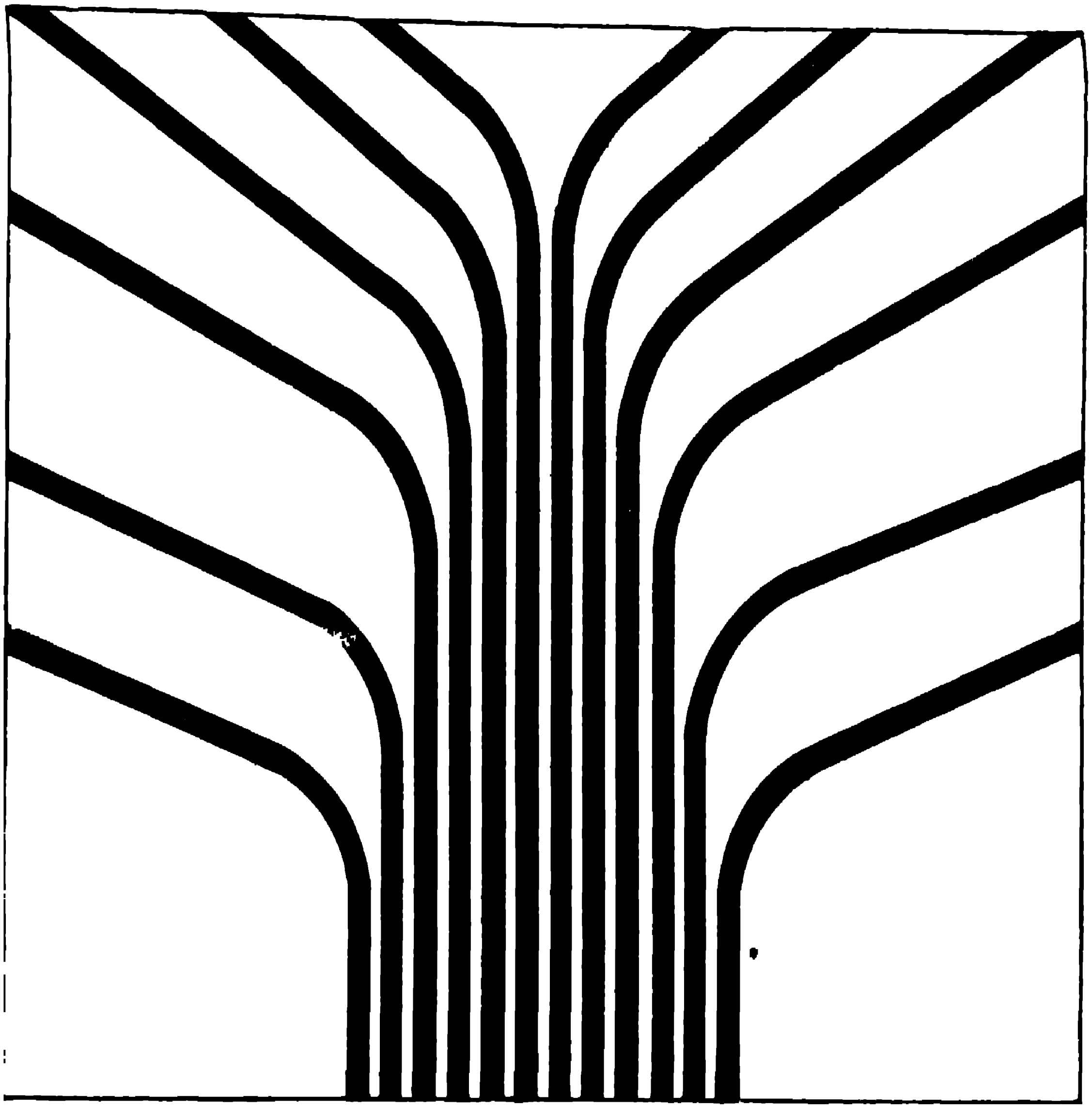

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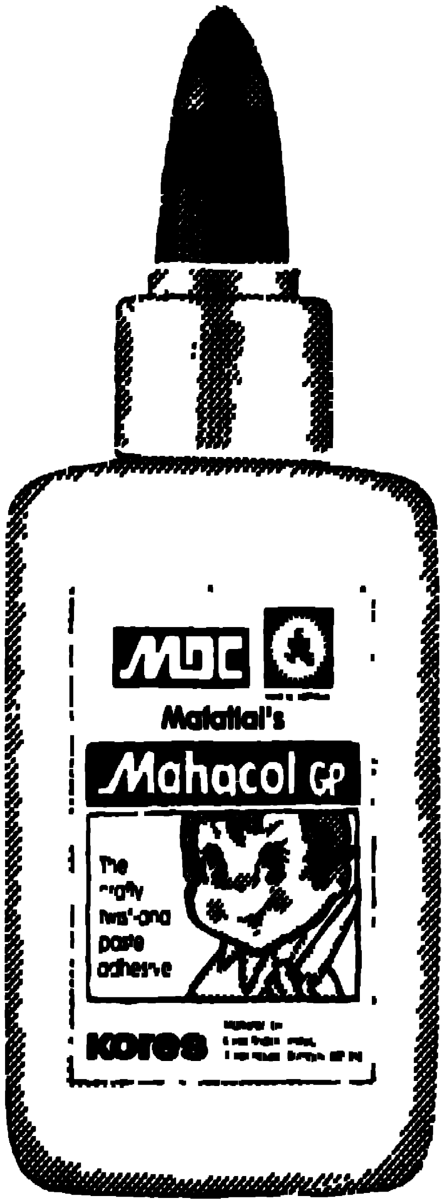
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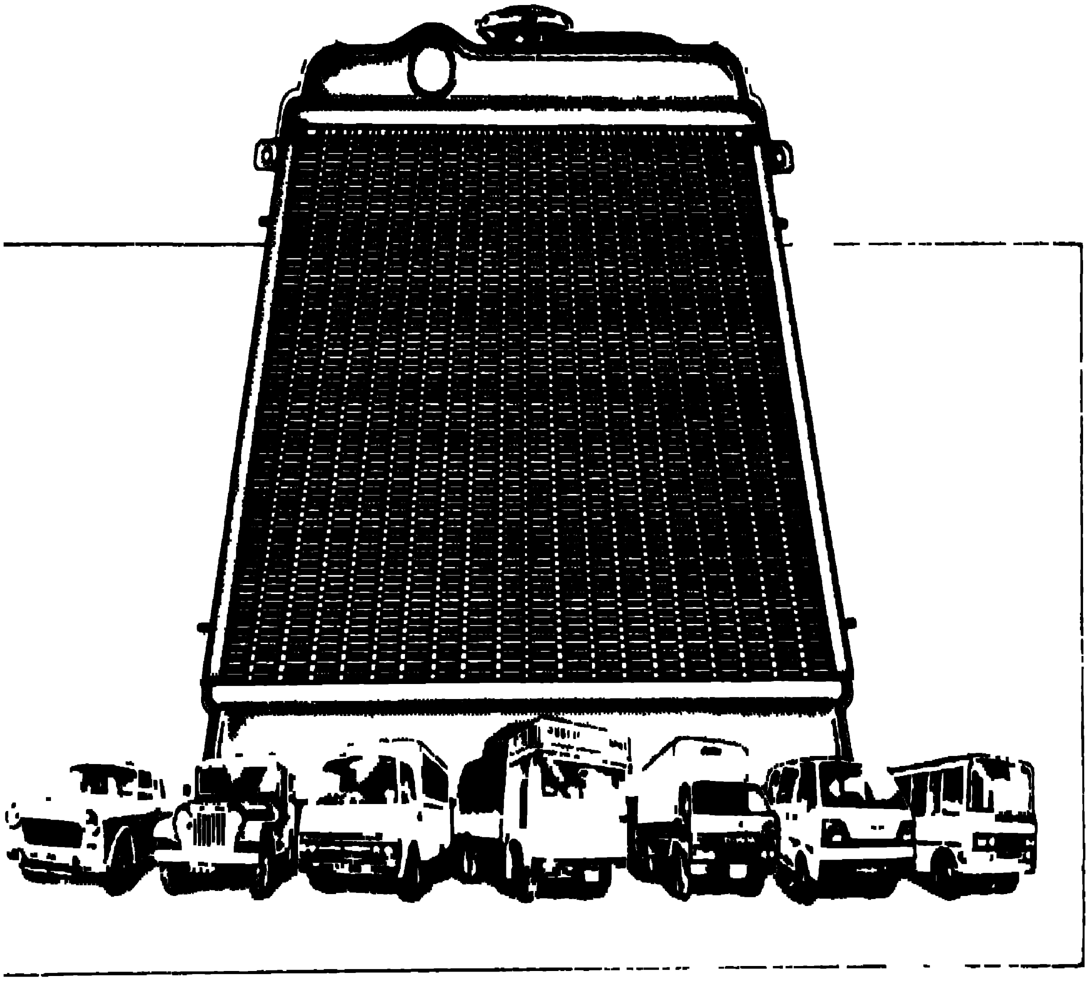

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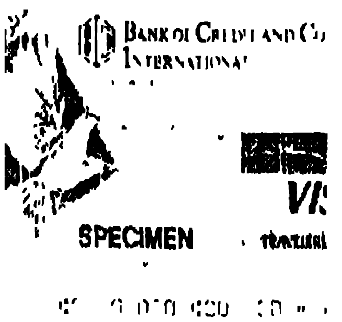

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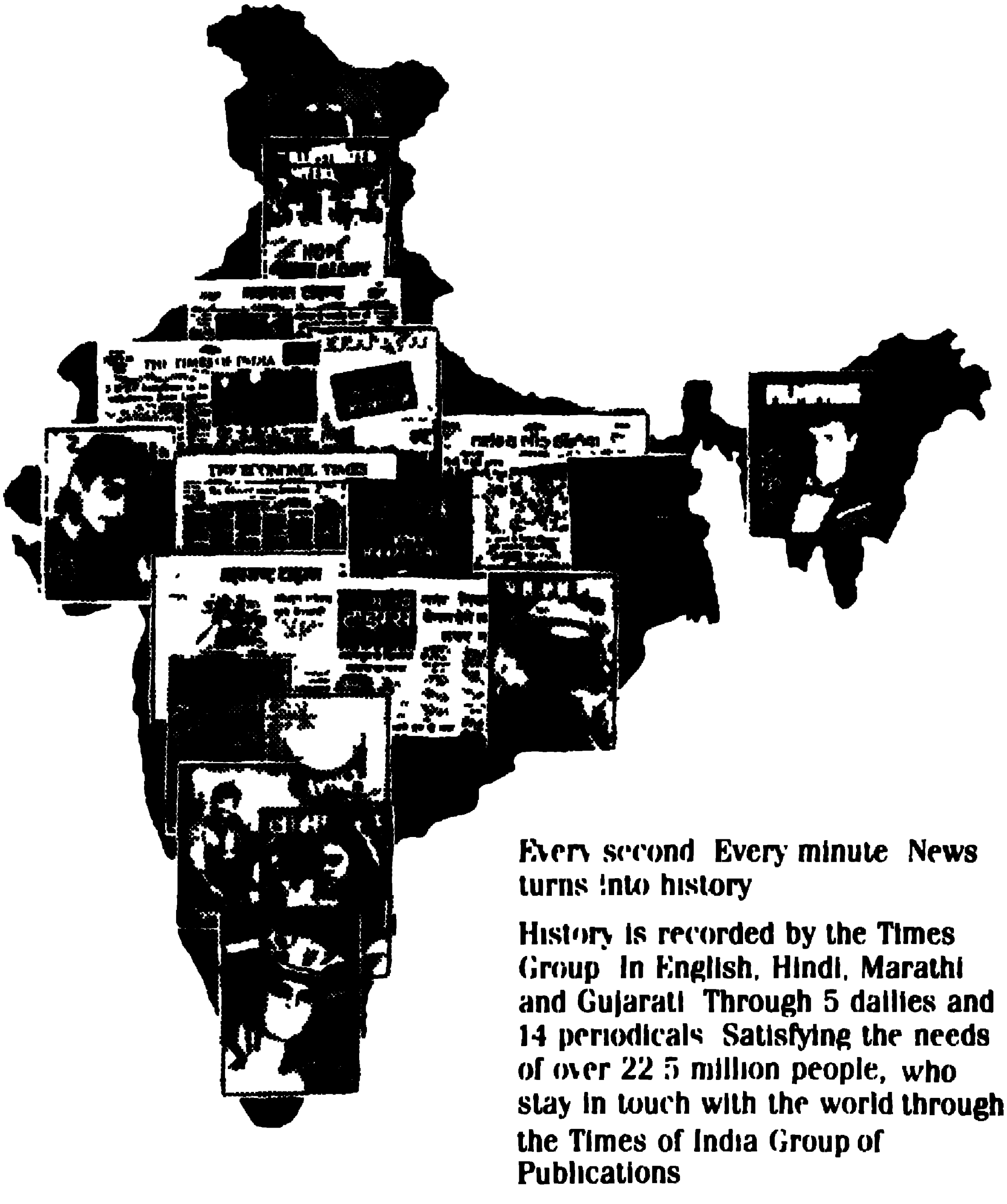

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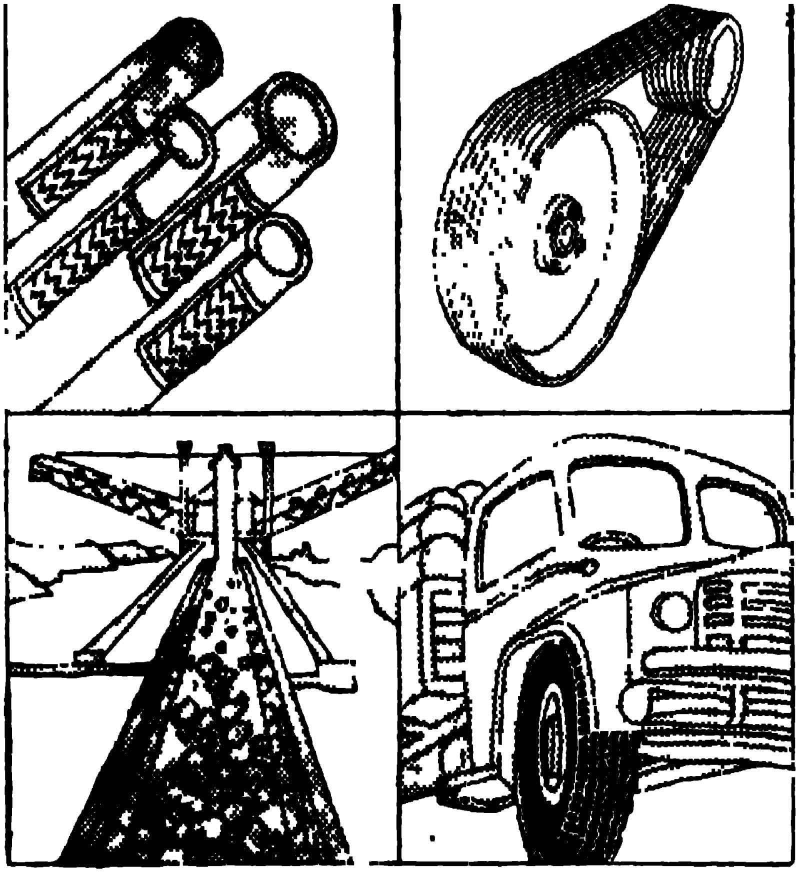

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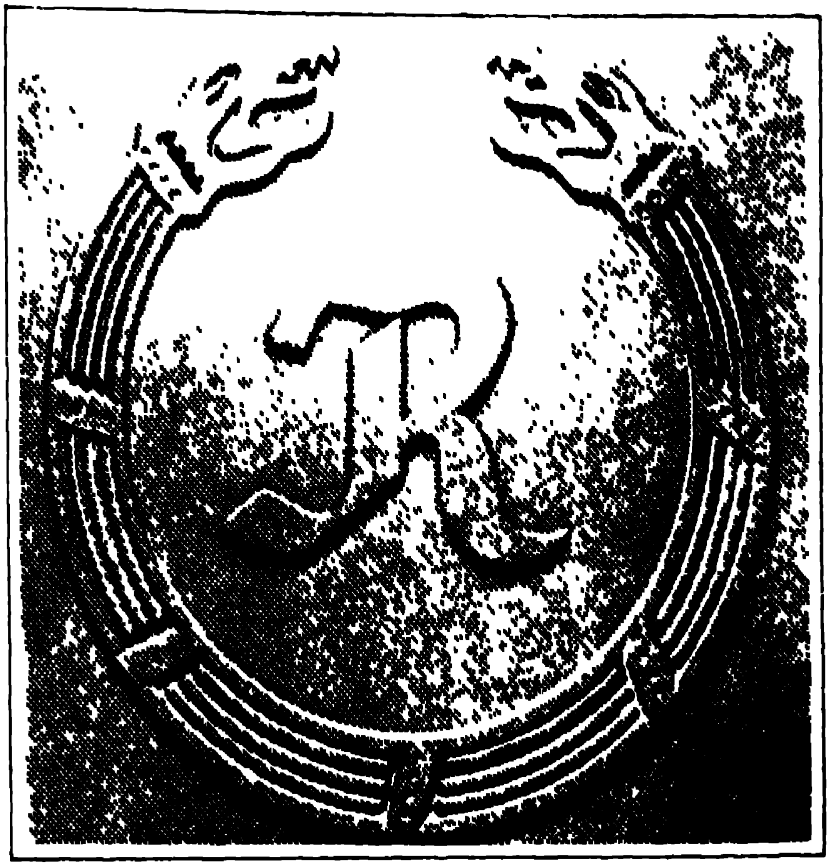

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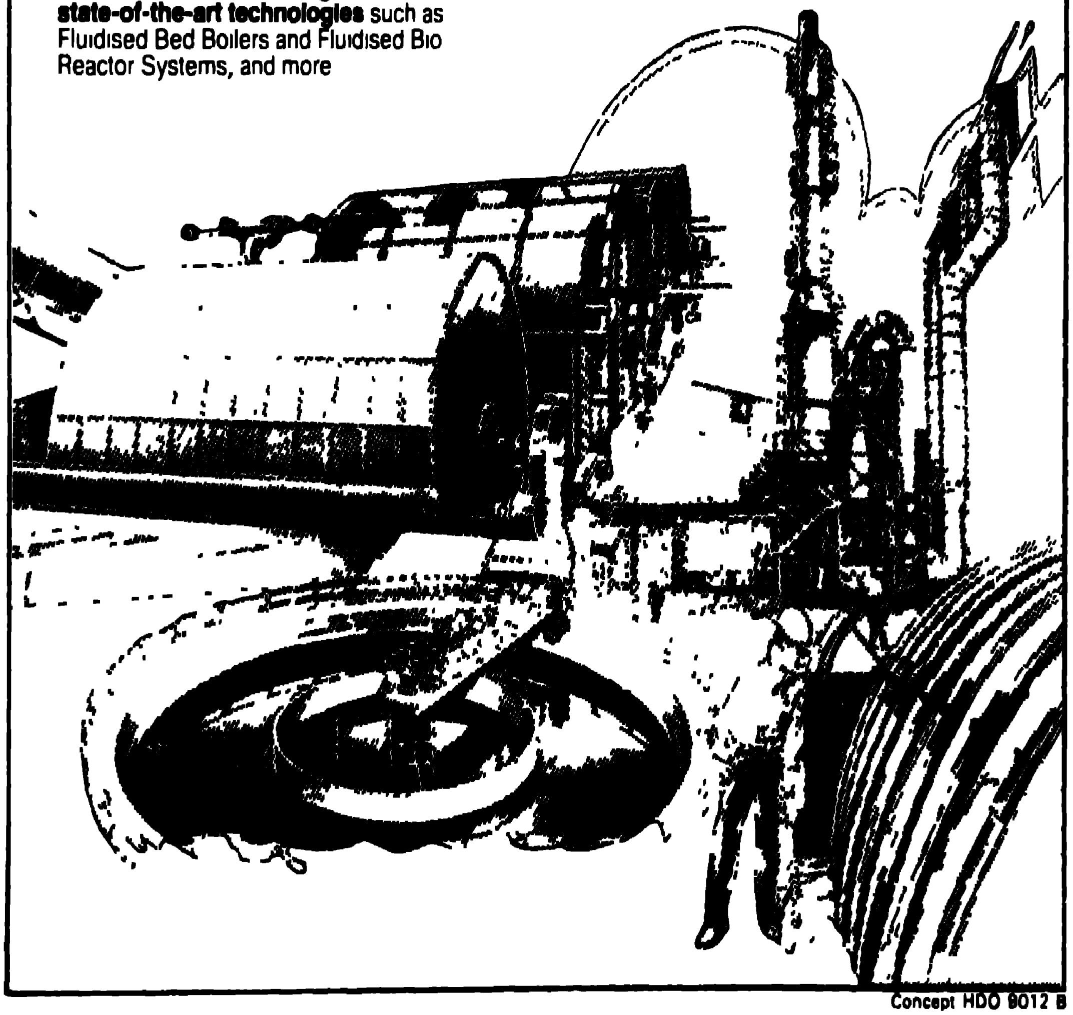

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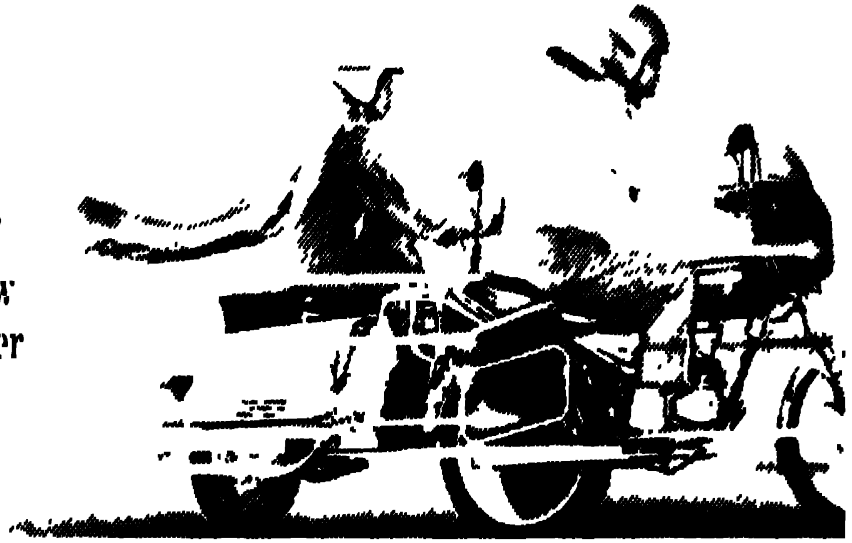

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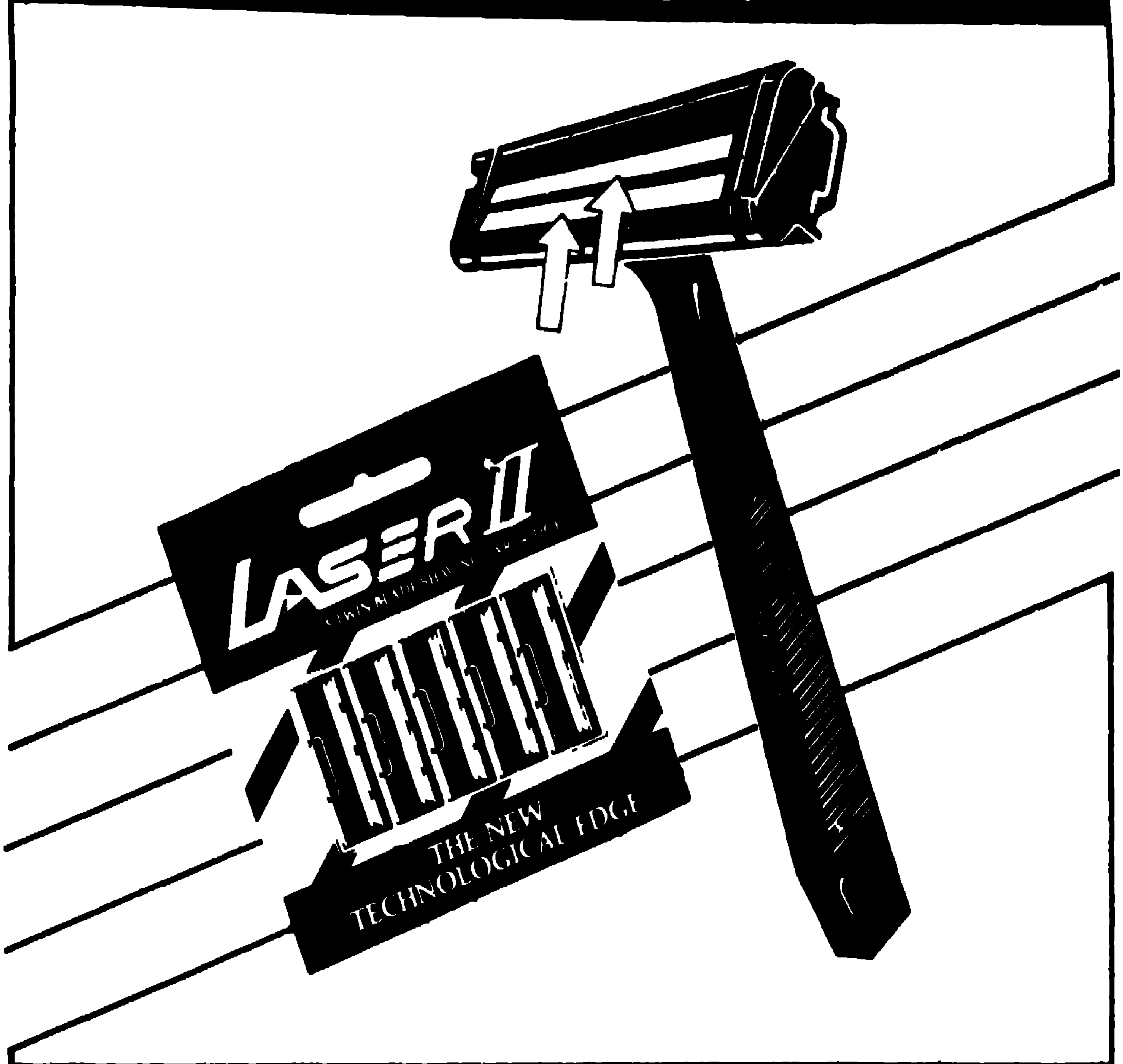

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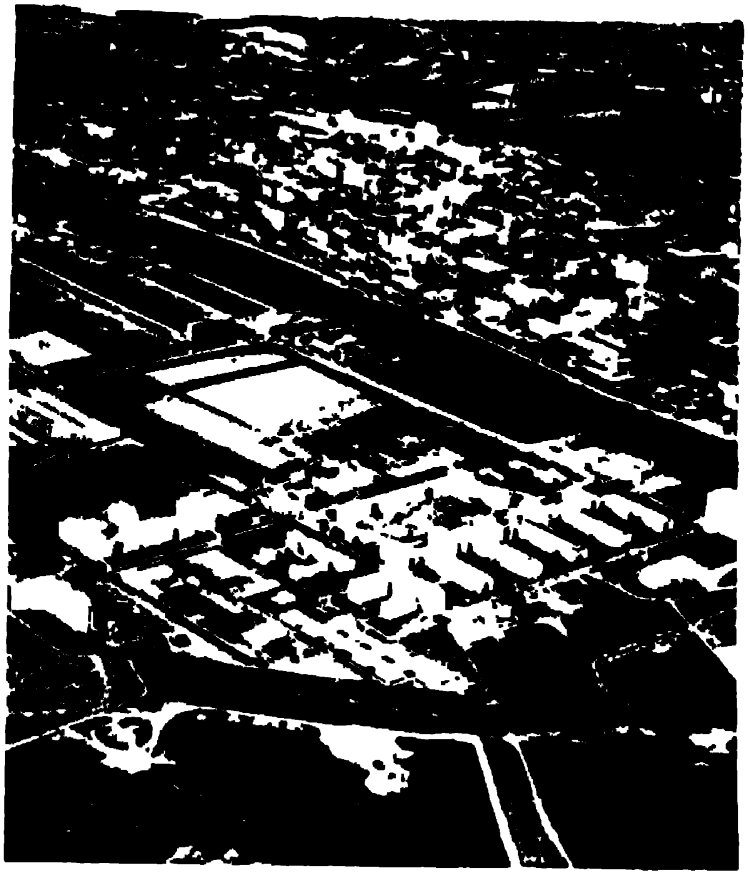

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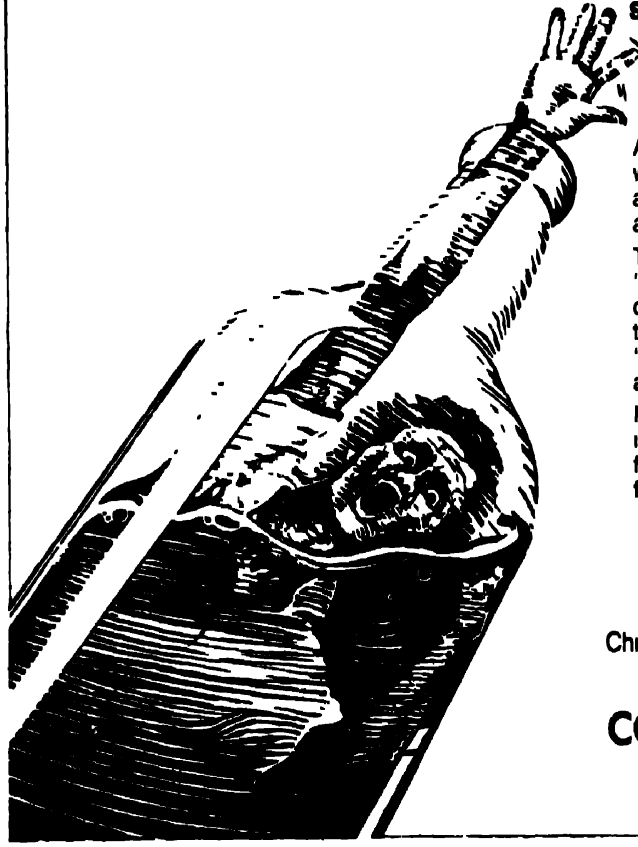
Save them from drowning in Alcoholism

Help them take the first step. Show them

पहला कदम

A 30 minute film, in Hindi, that shows alcoholics a solution to their problem.



Alcoholism, specially among industrial workers, is a killer disease – but it can be arrested What it needs is a little concern and action

That's why Bharat Petroleum has made 'Pehla Kadam' – a film that vividly describes the wretched life of 'Ganpat', the alcoholic, and how he learns a special 'mantra' which has helped millions of alcoholics to return to normal life

If even a single worker in your organization is an alcoholic, you are invited to show this film A VHS cassette can be borrowed, free of cost, from

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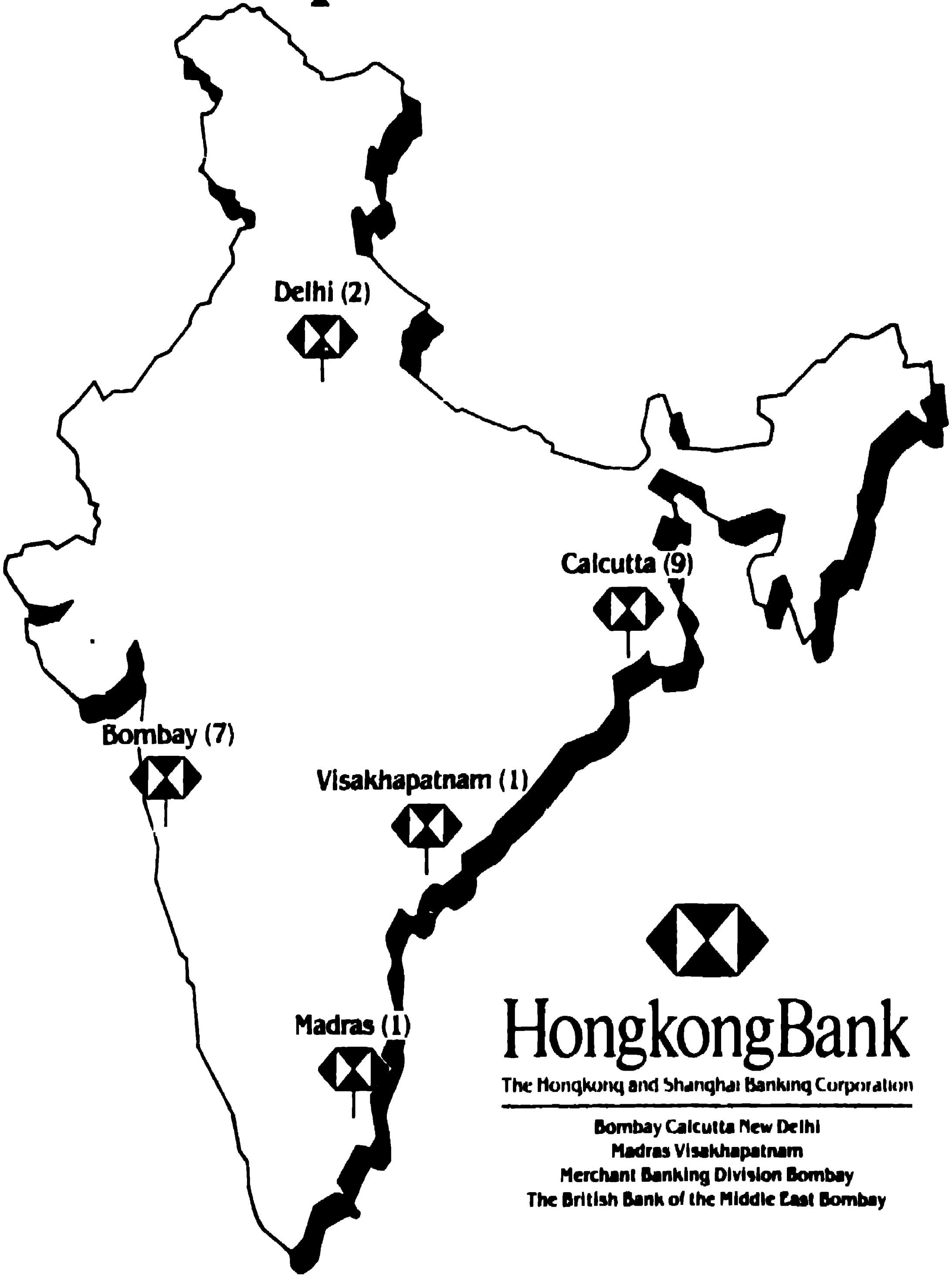

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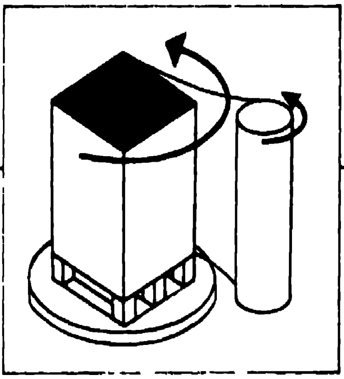

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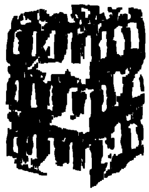

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And for the Ninth Plan, NLC pledges to march ahead with bigger schemes to continue its invaluable work

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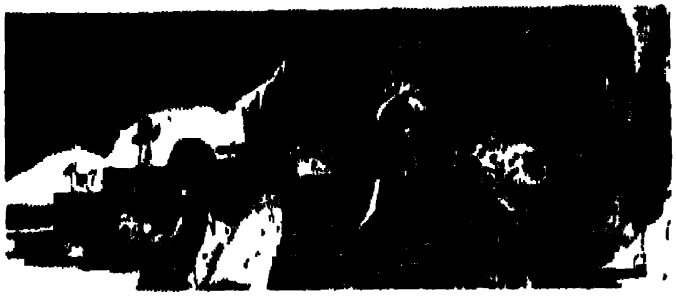

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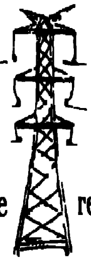
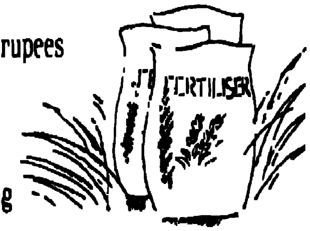
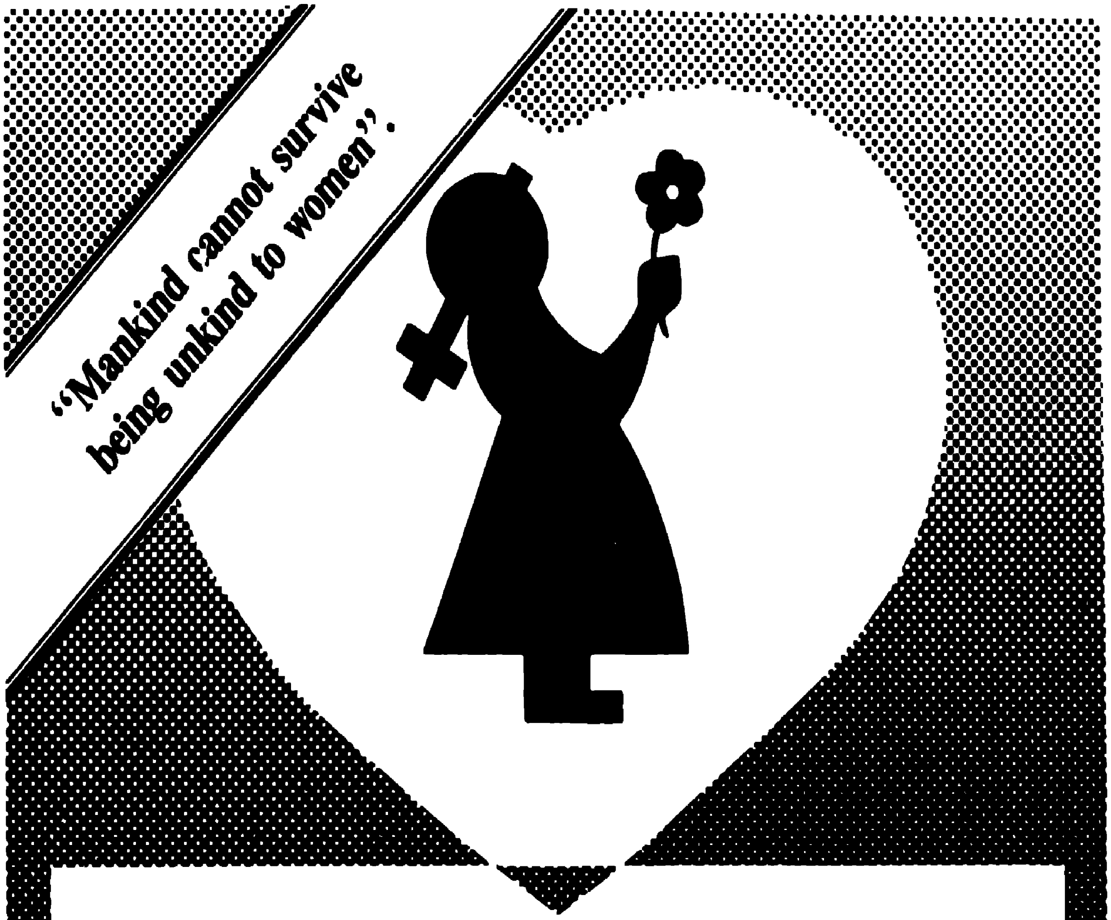




The smile on your child's face when he discovers the wonder, the fuel that makes his school bus move The sound of diesel gensets that help water the fields when the rains don't come The roar of aeroplanes and trains The glow of light bulbs The growth of industry and high technology that has been fuelled by us The gas flame in your kitchen And the good quality of food The redder apples, the greener spinach, the better wheat grain made possible by the fertiliser plants that run on gas from our oil wells And, of course, the clink of crores of rupees that we now save in foreign exchange through both curbing oil imports and indigenisation Also nearly a million job opportunities that ONGC helps to create These are but a few examples of what our other achivements look like Because, though our job is to discover oil, our aim is to discover a smile on your face

OIL & NATURAL GAS COMMISSION



"Mankind cannot survive being unkind to women".

The hand that rocked the cradle
and held the ladle,
is also the hand that
toils in the blistering fields
works the loom
and punches computer keys

Women who never crossed the
threshold of their kitchens
today seek a fair share
in education employment
and nation building

Economic strength should no longer
be a one way process
Women must be given their rights
Fundamental rights as equal
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The Government of Tamilnadu's fair deal to the fair sex includes

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may there be a supportive male'

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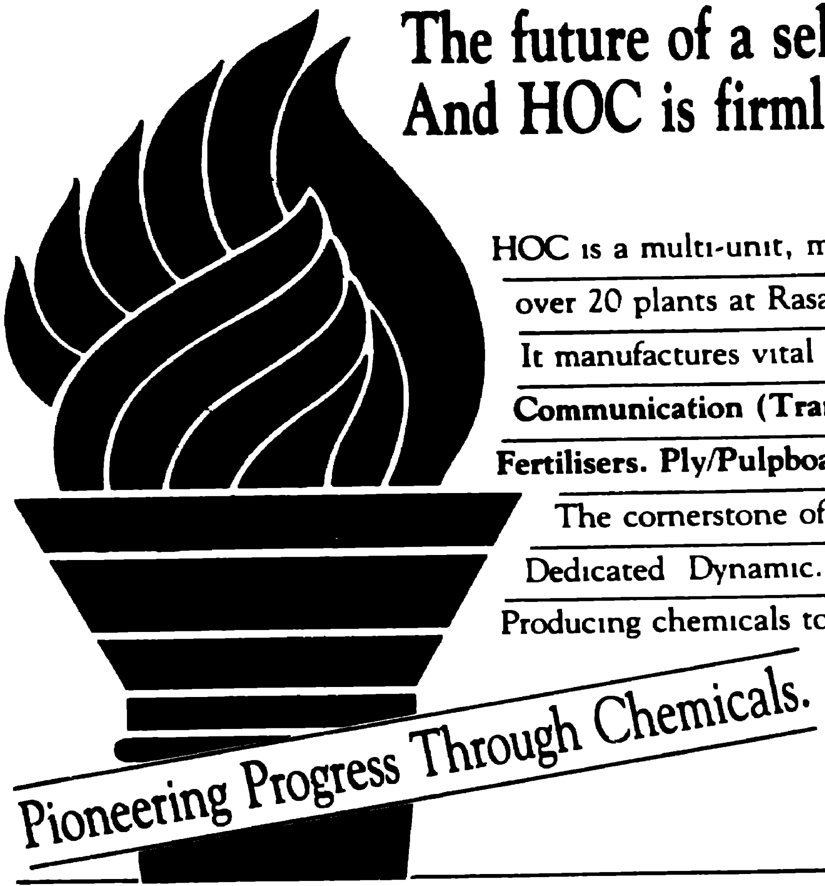
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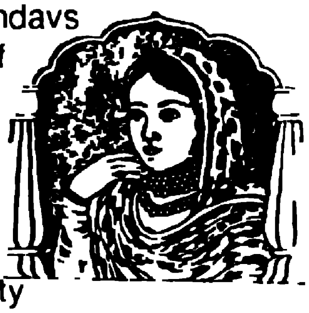
Punjab is...
where India began

on the banks of
the mighty Indus
when the five rivers of
today and the Saraswati
and Drishadvati of the Vedas and
Mahabharat made it the *Sapt Sindhu*
That's where Indian culture was born at
Harappa and grew through the
ages of Vyas and Vashisht
the Kauravs and Pandavs
into the historical influence of
Buddhism and Alexander
Bards sing of Heer and Ranjha
Sohni and Mahiwal in a
celebration of chivalry and
romance tears and laughter
while *ragis* praise the almighty
in songs with a powerful tradition



The past is replete with embodiments of
karam and *seva* from this soil Farid
Nanak Ranjit Singh Lajpat Rai Bhagat Singh
and the martyrs of Jallianwallah Bagh

So is the present

On the farm and battle front in enterprise
and adventure

The spirit of celebration
is the spirit of Punjab

PUBLIC
RELATIONS
PUNJAB

SPICES TRADING CORPORATION LIMITED
(A Government of India undertaking)

No. 72, Nandidurg Road Extension, BANGALORE-560 046

Telephone 330843, 330371	Telex 0845-8455-STCL IN Grams CETESTOCK

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117,3 Floor, Gadodia Market, Khari Boali, DELHI-110 006	Telephone 239032 TLX 031-78174 STCL IN
15-7-522, Begum Bazar HYDERABAD-500 012	P P No 45758
14, Ganapathy Street MADIKERI-571 201	Telephone 6630
195 A, Park Street, 2nd Floor, CALCUTTA-700 017	Telephone 440392

SBR
The Key to self-sufficiency of India's Rubber industry.

Synthetics And Chemicals Limited are going all out to help both Tyre and Non-Tyre sectors to develop SBR culture for growth and self-sufficiency of the country's rubber industry

With our plant running at optimum level, our production can meet the entire demand of all rubber using industries

Plans are underway for expanding production to 80,000 MT of SBR

We have taken every possible measure to ensure customers' supplies of SBR/NBR/LATICES grades* from any of our delivery points — Bareilly, Regional Warehouses at Delhi, Bombay, Calcutta, Madras or through our Consignment/Depot Agents in their respective regions

We are also ensuring supplies of SBR to both Tyre and Non-Tyre sectors through closer co-ordination with them, along with discussions on increasing their consumption of SBR

We are also making special arrangements for even the smallest of customers to get their supplies from our godowns and distribution outlets, like Jalandhar, Faridabad, Kanpur, Kottayam, Bhiwadi, etc

***SBR — SYNAPRENE 1502, 1712 & 1958**
NBR — CHEMAPRENE 3309/3311 & 3809/3811
LATICES — S-2000 & NITRILE.

For further information, please contact –
Marketing Manager

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emicals ltd.
15 Community Centre New Friends Colony New Delhi 110 065
Phones 6831896 6831330 6830897 Telex 031-65879

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  Phones 4221458/4300688 Telex 11 5635
- 2 Brabourne Road Calcutta 700 001
  Phones 264386 87 Telex 21-4387
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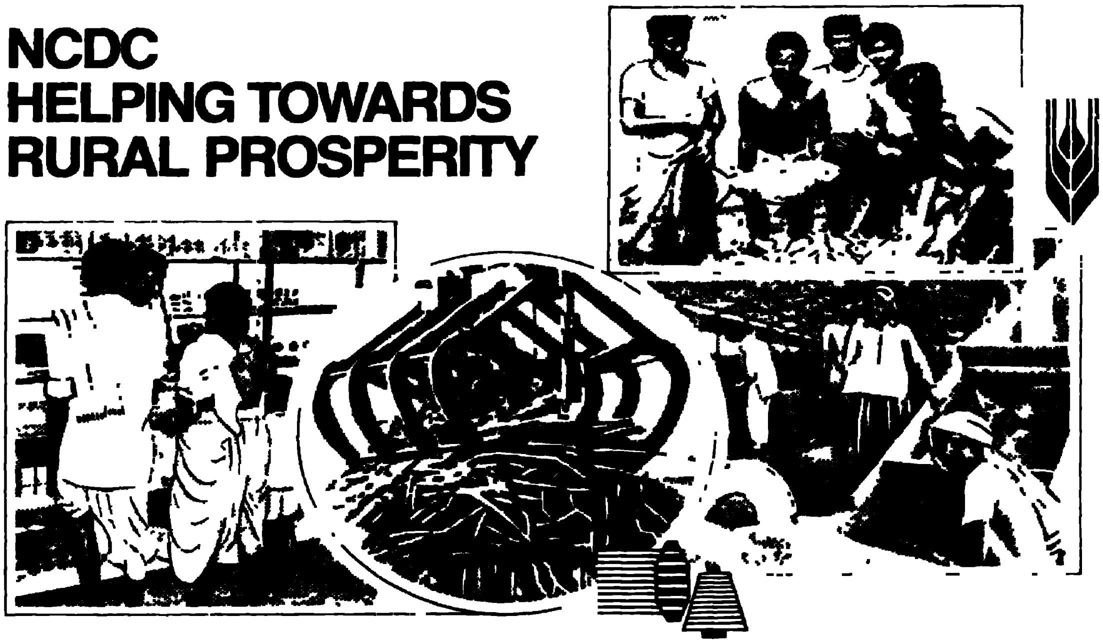
NCDC
HELPING TOWARDS RURAL PROSPERITY



NCDC plans, promotes and finances through cooperatives, production, processing, storage and marketing of agricultural produce, production and distribution of fertilisers and other inputs, distribution of essential commodities in rural areas and development of weaker sections and cooperatively less developed areas.

Cooperatives now market agricultural produce valued at over Rs. 4000 crores. Farmers receive a remunerative return for their produce and also obtain production inputs and consumer requirements at fair prices from cooperatives.

To strengthen cooperative infrastructure at the villages, already over 100 lakh tonnes of capacity for storage of agricultural produce, inputs and consumer goods has been created through NCDC's assistance of over Rs. 350 crores.

NCDC is paying special attention to the development of oilseeds through initiating integrated projects with latest technology in major oilseeds growing states of the country. Cooperatives have created 13 lakh tonnes of oilseed processing capacity. NCDC has contributed Rs 230 crores for their development.

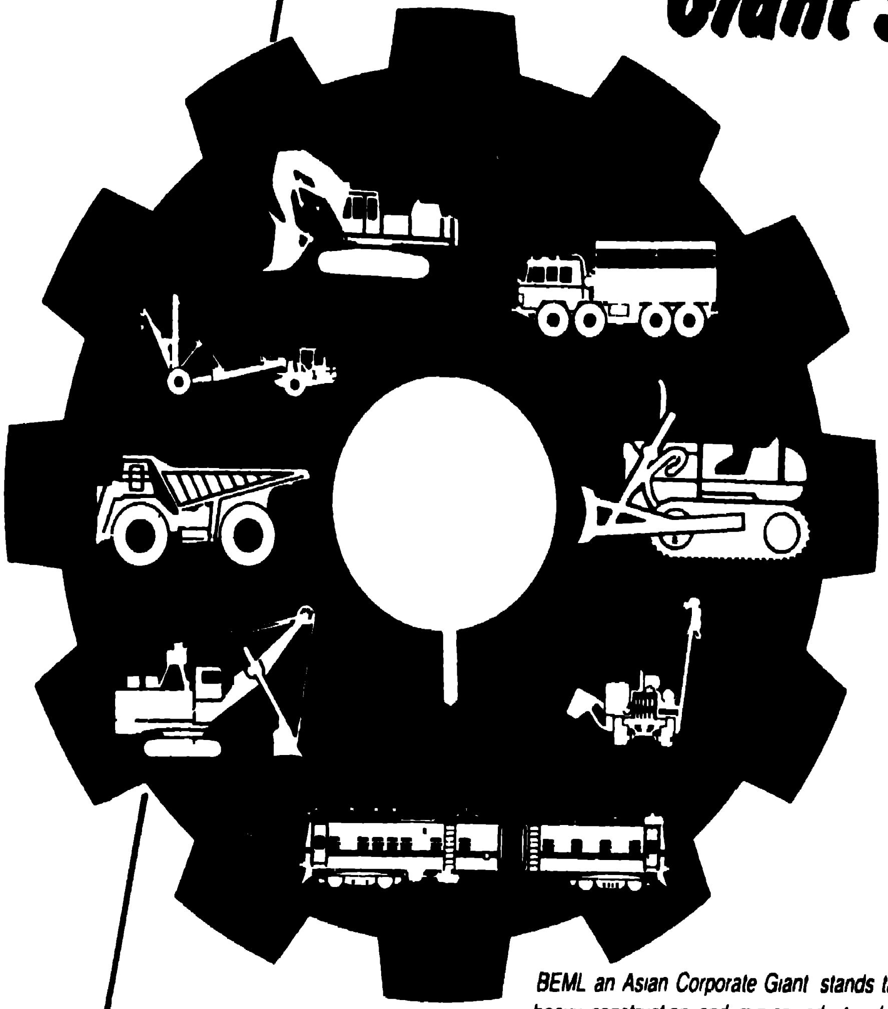
Cooperative sugar and spinning mills have a consistently high level of capacity utilisation and are an important segment of industrial production. Cooperative sugar factories now produce nearly 60 per cent of national output of sugar. NCDC is actively involved in their promotion and development.

For tribal and other weaker sections such as fishermen, handloom weavers, small and marginal farmers, the Corporation operates special schemes with softer terms of financing. The emphasis is on integrated projects which link production with marketing and processing.

Since inception in 1963, NCDC has invested over Rs. 1200 crores in the cooperative sector. In 1986-87, it disbursed Rs. 148.52 crores.

In its 25 years of service, NCDC has seen with pride the cooperatives making their presence felt in the rural economy.

NATIONAL COOPERATIVE
DEVELOPMENT CORPORATION
4, Siri Institutional Area, Hauz Khas New Delhi



Giant Movers
Giant Strides

BEML an Asian Corporate Giant stands tall in the heavy construction and mining industry designing developing and manufacturing a variety of sophisticated and high technology bulk material transportation systems and equipments for the core sectors of economy constantly breaking new grounds in the domestic and international markets

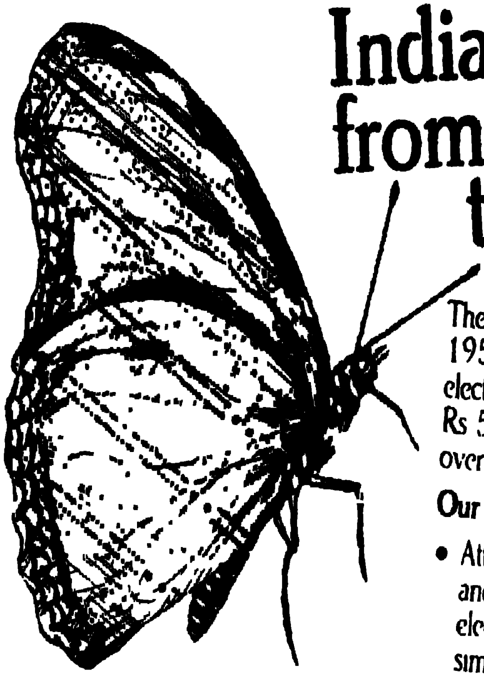
The Company's wide-ranging product mix include mining and construction equipments like excavators bulldozers rear dumpers walking draglines rope shovels and motor graders besides integral railcoaches overhead electric inspection cars for railways, heavy duty trucks trailers and sophisticated transmissions for combat vehicles for the defence sector and a variety of material handling equipments for irrigation power aviation and other industries

BEML has crossed Rs 700 crores in 1989-90 in its annual turnover and is moving ahead to reach the Rs 1000-crore mark by early 1990s

Indeed, giant strides by the Giant Movers

beml BHARAT EARTH MOVERS LIMITED
— Building Machines That Build The Nation

We have taken Indian Electronics from infancy... to maturity



The establishment of Bharat Electronics in 1954 also marked the birth of the Indian electronics industry Today, we are a Rs 500 crore company with 9 factories and over 19,000 employees

Our achievements include:

- Attainment of in-house capabilities to design and manufacture a comprehensive range of electronic components and equipment - from simple ICs to radars and turnkey communication systems
- Progressive introduction of state-of-the-art product and process technologies
- Development of a strong ancillary base
- Dissemination of knowhow through joint ventures
- Growing involvement in diverse areas from defence and TV transmission to meteorology and telecommunications

Bharat Electronics As always, at the forefront of the electronics revolution

Bharat Electronics Limited
Regd Office 'Trade Centre'
116/2, Race Course Road,
Bangalore - 560 001

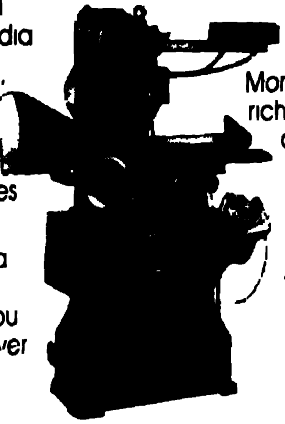
भारत इलेक्ट्रॉनिक्स
BHARAT ELECTRONICS
QUALITY, TECHNOLOGY AND INNOVATION.

WHY 'MADE IN INDIA' OFTEN MEANS 'MADE WITH PRAGA'

Praga Tools makes machines that make machines And Praga Tools has been making more of these machines, and for a longer time than anyone else in India

Praga's brigade of cutter grinders, surface grinders, milling machines, lathes, both conventional and CNC, have become a familiar sight in factories across the country

Praga's machine precision goes a long way in rolling out quality machines that are used to give you the products you enjoy So whatever it is you consume, there's a good chance that down the line Praga's precision helped out



Just how did Praga become so much a part of life?

More than four and a half decades of rich experience, many collaborations, and diversifications stand behind Praga Tools' reputation Praga stands out too, through its will to innovate Research and development constantly expand the range with new model designs

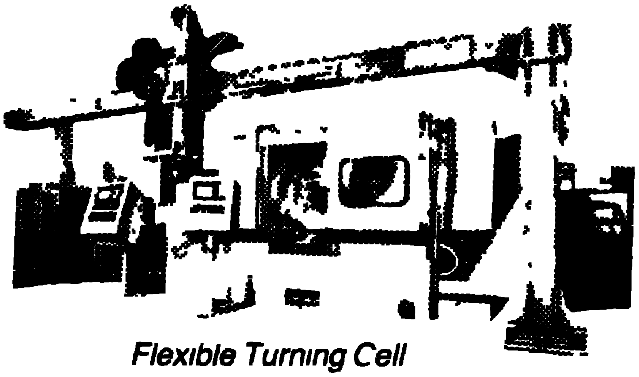
Praga and India It's a relationship that has had a far reaching and positive impact on your life !

Praga
TOOLS LTD

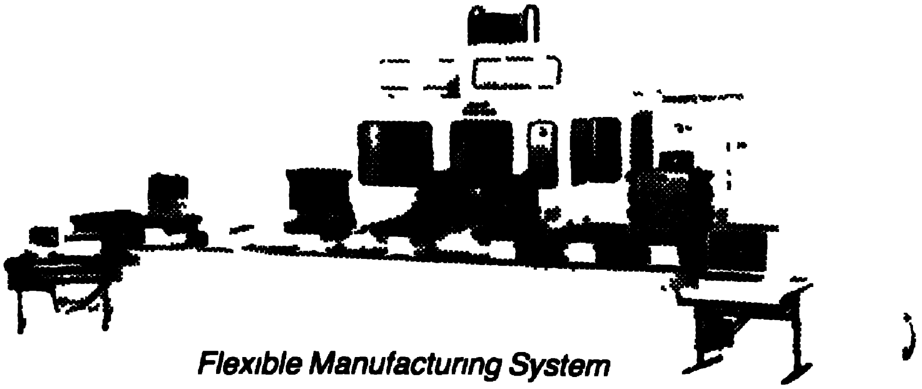
Praga Tools Limited,
(A subsidiary unit of HMT Ltd A Govt of India undertaking)
6-6-8/32, Kavadiguda, Secunderabad 500 380.
Tel 70121/823579/834387 Telex 0425 6202 Telegram PRAGA, SECUNDERABAD

From Praga Tools
The machines that shape India's destiny

PUT YOUR PRODUCTIVITY ON FAST FORWARD WITH CNC MACHINES FROM HMT



Flexible Turning Cell



Flexible Manufacturing System

HMT is the largest manufacturer of machine tools in India, a country which has made significant technological progress in areas from superconductivity to spacecraft, nodule mining to cold fusion and computer software to flexible manufacturing systems

HMT presents a wide range of CNC machines for every precision machining need State-of-the-art machines manufactured in strict compliance with the most exacting international standards of quality Backed by an efficient and experienced service team to keep the machines in top condition

HMT's CNC range includes slant bed turning/turnmill centres, horizontal/vertical machining centres, CNC grinders, CNC gear hobbers, CNC wire-cut EDMs, etc And now, flexible manufacturing systems and unmanned production centres - integrated, automatic machining, work handling, inspection and tool management systems, that can machine and store components without operator's intervention

HMT's CNC machines

- Step up productivity
- Improve safety
- Reduce wastage
- Enhance economy

Enhance your productivity with HMT's CNC machines.

HMT (International) Limited
17, Ali Asker Road
BANGALORE-560 052 INDIA

WITH BEST COMPLIMENTS FROM
BHARAT BHARI UDYOG NIGAM LIMITED

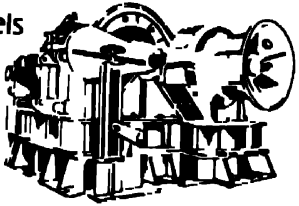
(A Govt. of India Public Sector holding company-comprising of nine subsidiaries, viz., Jessop & Co. Ltd, Braithwaite & Co. Ltd, Burn standard Co. Ltd, Lagan Jute Machinery Co. Ltd, Bharat Process & Mechanical Engineers Ltd, Bharat Wagon & Engg. Co. Ltd, Braithwaite, Burn & Jessop Construction Co. Ltd, Bharat Brakes & Valves Ltd & Weighbird (India) Ltd.

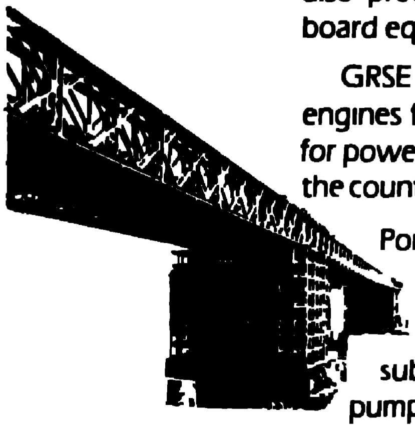
A CONGLOMERATE OF DIVERSIFIED ENGINEERING EXPERTISE UNDER ONE ROOF IN EASTERN INDIA SERVING THE NATION WITH COMPLETE DEDICATION

Towards National Growth and Self Reliance

As a defence shipyard, GRSE is currently engaged in the construction of a series of various types of Ships/Craft for the Indian Navy and Coast Guard

GRSE has the capacity to design and build ocean going ships up to 27000 DWT Presently building Frigates, Corvettes,Fleet Tanker Landing Ship Tank, Survey Vessels and Inland Patrol Vessels GRSE also produces a variety of ship board equipment

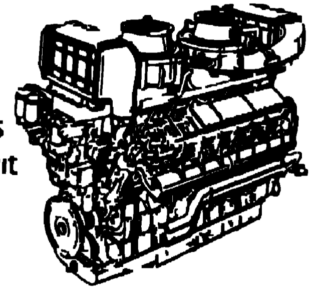




GRSE builds a range of diesel engines for marine propulsion and for power generation—the most efficient in the country

Portable steel bridges built by GRSE are the best product of its type

GRSE also manufactures submersible/turbine pumps for agriculturists



The list of GRSE products is endless and GRSE's pursuit of progress is matchless

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(AGovernment of India Undertaking)
43/46 Garden Reach Road, Calcutta - 700 024
Phone 45 1721 (8 Lines) ● Gram Combine
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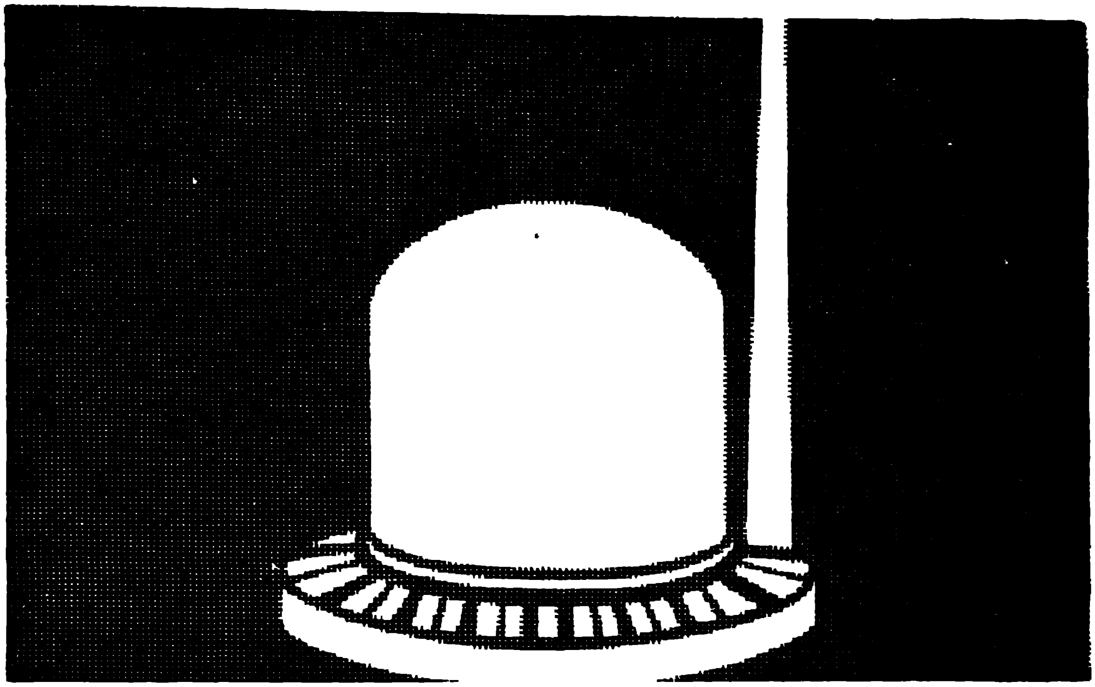


Midhani special alloys play a stellar role in nuclear applications.

Midhani manufactures specialised grades of steels and superalloys to meet the stringent specifications for nuclear applications

The basic production technology has been acquired from reputed foreign organisations like Creusot-Loire and Pechiney-Ugine-Kuhlmann of France and Krupp Kloeckner AG of West Germany

Apart from this, Midhani also has the latest equipment and quality control facilities to ensure that all Midhani alloys meet international standards in quality and performance

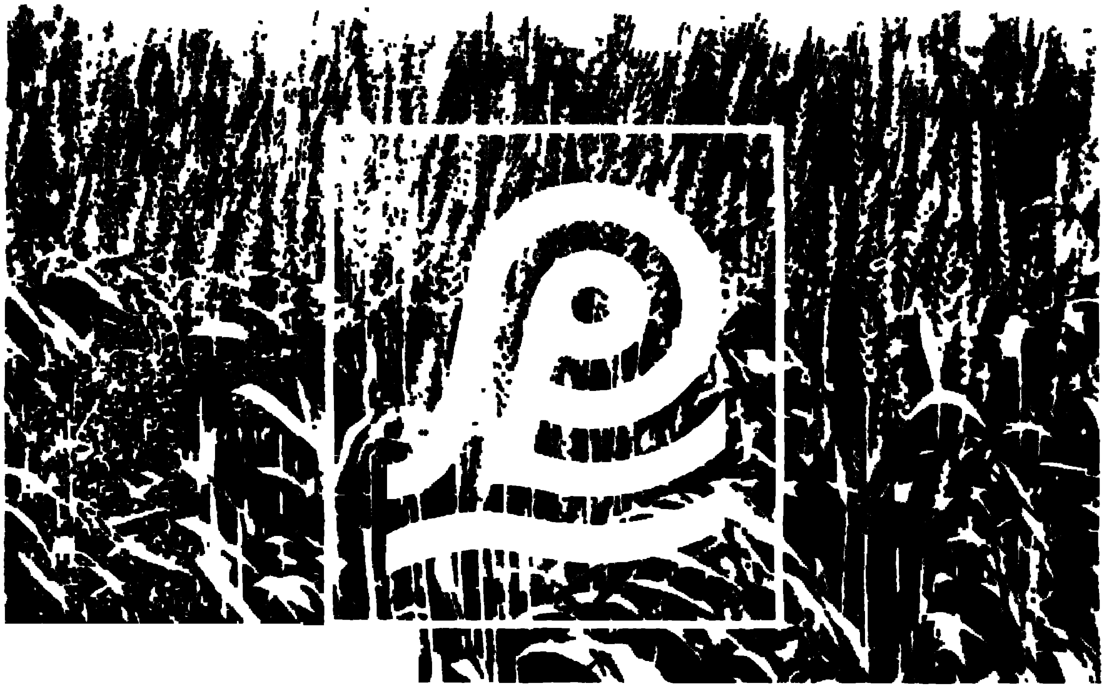
Some of the unique production facilities are the vacuum induction melting, vacuum arc remelting and electroslag refining furnaces, precision forging, rolling and wire drawing equipment and a well equipped central quality control laboratory

Midhani's product range includes iron, nickel and cobalt based superalloys, special purpose steels, titanium and titanium alloys, electrical and electronic alloys including electrical resistance alloys and powder metallurgy products

MIDHANI

Mishra Dhatu Nigam Limited
(A Government of India Enterprise)
● Kanchanbagh Hyderabad 500 258

"If this bumper crop could speak..



... it would thank PPL"

She would tell us the story of prosperity of Ramu the owner of the farm on which she stands

Of bad times when despite a hard day's work at the field, Poor Ramu failed to provide his family even the proverbial two meals a day!

Then times changed when Ramu switched over to PPL DAP And I had says she 'the good fortune of getting plentiful nourishment I am proud that I am taller and far healthier than those close by who haven't had the good fortune of such a nourishment That means this crop would be a bountiful, glowing golden harvest

Today thanks to PPL Ramu is happy and prosperous And so are his wife and children

Paradeep Phosphates Ltd
(An Enterprise of the Govts of India & Nauru)
98 Nehru Place New Delhi-110019

Newfield

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EXCELLENCE

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Plot No 94, Canal Road,
Ramdaspeth Nagpur 440 010
Tel 522818 531140
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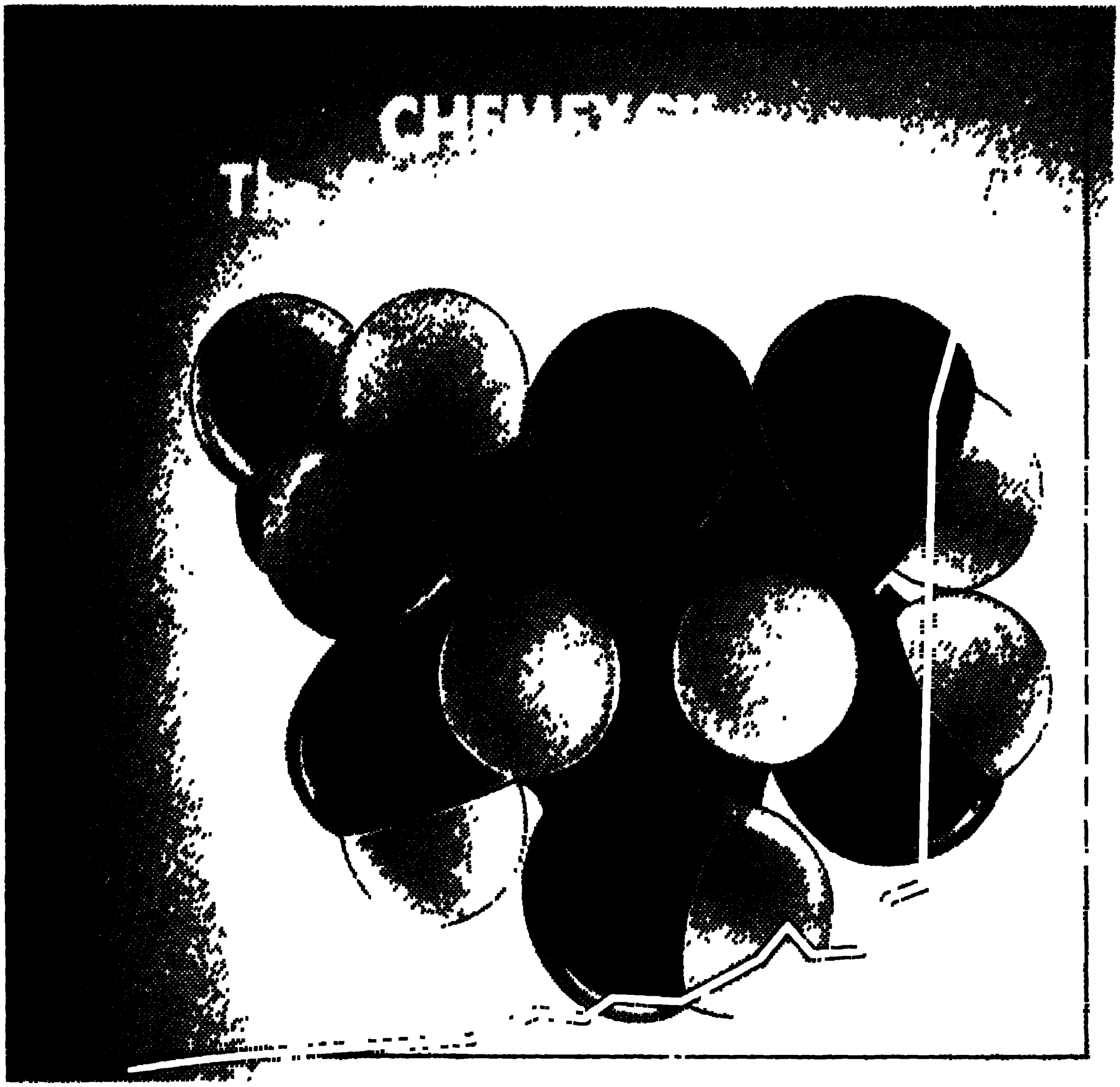

A growing global preference for Indian chemicals

From a modest Rs. 14.25 crores in 1964, exports of basic chemicals has jumped to Rs. 1247 crores in 1988-89. Behind the success lies CHEMEXCIL, promoting the export of international quality chemicals, pharmaceuticals, dyes, agrochemicals, organic and inorganic chemicals, cosmetics and toiletries.

Creating a dynamic export environment

CHEMEXCIL assists its members — numbering over 3000 — by locating reliable buyers abroad; arranging buyer-seller meets; conducting market research and market orientation tours abroad, inviting foreign trade delegations to India. Also, technical upgradation and an inculcation of export culture among its SSI members, are its priorities. CHEMEXCIL plays a vital advisory role to the Government of India in all matters concerning basic chemicals.

For CHEMEXCIL, creating a dynamic export environment stems from a deep-rooted commitment to Excellence

For assistance, guidance and information contact us at

BASIC CHEMICALS, PHARMACEUTICALS & COSMETICS EXPORT PROMOTION COUNCIL

Jhansi Castle, 4th floor, 7 Cooperage Road, Bombay 400 039
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Now introduce

NI-A2/MU
CHARTOMETRIC DICITIZER

NI-A2/MU chartometric digitizer is a device used for processing of graphic information which constitutes the contents of maps plans, diagrams, plots, etc into numerical one,

The information processing is performed by assigning the numerical data as XY co-ordinates to individual plane points the inverse operation i e mapping the points with the given XY co ordinates on the surface is also possible

Two rotational-pulsing converters placed in a movable carriage constitute the basic part of the measuring system The carriage can move smoothly on a metal guide-bar equipped with four legs providing the stable setting up of the instrument the another guide-bar is positioned vertically to the first one and ended in an optical sight together with a divider point In the upper part of the optical sight there are two push buttons -- one being used for recording the point co ordinates and the other -- for zeroing

This chartometric digitizer can co-operate with any computer of the externally accessible programmable interface type 8255 Intel, e g Meritum, PMD-85 or RS 232 serial interface, e g IBM, Commodore, Amstrad, thus forming an operative and useful digitizing system

NI-A2/MU has all the features of a typical protable instrument It can be easily assembled and disassembled in a few minutes A durable and portable case protects the high-precision elements against transport damages

NI-A2/MU chartometric digitizer is a reliable device of a simple construction, and it is easy to use It secures work precision equal to that of stationary equipment

APPLICATION

When interfaced to the microcomputer, using proper software the NI A2/MU can be applied, for example, for the following tasks

- calculating the length of roads rivers, channels etc as well as suface area from the maps of all scales for geodesic cartographic transport and statistical pur poses
- plotting points on maps diagrams or other materials with imposed co ordinates by means of a divider point
- calculation of the volume of the earth mass to be displaced during industrial and housing building highway layout and hydrotec tonics,
- creating numerical data bases for statistical purposes in geodesy, cartography geology and many other branches considering the posibility of geodesic transformation between any map sets
- designing integrated circuits and integrated circuit masks for the electronics
- analysis of photographs for aviation sport and medicine,
- modern design of supporting structures e g bridges frameworks, ceilings, roof constructions, etc

TECHNICAL DATA

working area	596 x 420 mm
resolution	0.05 mm
readout of co-ordinate in millimetres as well as in pulses	(1 pulse = 0.05 mm)
average digitization accuracy	± 0.1 mm
repeatability of a co-ordinate readout	± 0.1 mm
observation by means of an illuminated optical sight of	
-viewing area	⌀ 30 mm
-magnification	2 x
power supply	220 V + 10%, 15%
power input	max 50 V A
operating temperature	10° C -55° C, 285 330 K
outer dimensions and gross weight of	
-working table with digitizers	780x300x200 mm and 20 kg
-display unit	355x295x135 mm and ca 4 kg

NATIONAL INSTRUMENTS LTD
(A government of India Enterprise)
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NEW DELHI, BOMBAY, MADRAS, CUTTACK

Exploiting agronomical potentiality through innovative technology

PPCL has applied the latest know-how in the mining of pyrites and rock phosphate, providing import substitution for elemental sulphur and rock phosphate. Thus saving crores of rupees in foreign exchange.

India's first of its kind Phosphatic Fertilizer Plant at Amjhore has already been commissioned Based on iron pyrites, it sets trend for upcoming Phosphatic Fertilizer Plants. Costing Rs. 65 crores, the plant will save about Rs. 9 crores in foreign exchange annually with production of 320 TPD Sulphuric Acid and 800 TPD of SSP, under the brand name of 'SONE GANGA KHAD'

Nearly 1 2 lakh hectares of alkali soil is reclaimed using AGRICULTURE GRADE PYRITES in Uttar Pradesh and Bihar producing 6 lakh tonnes of additional food grain every year

Besides, Pyrites has proved as an effective Sulphur fertilizer.

"MUSSORIE PHOS", a unique phosphatic fertilizer, is extensively used in the country and as an import substitute has saved Rs. 6 crores in foreign exchange during 1988-89.

Saladipura project has 120 million tonnes of medium grade pyrites deposit equivalent to 25 million tonnes of sulphur and has diversified into production of fine quality marble and granite.

PPCL has demonstrated a keen ecological sense by making ZERO POLLUTION its objective, at all its projects.

Research and Developments show good prospects for the production of magnets and pigments from pyrites

TO SUM IT UP PPCL has totally dedicated itself to bring about a rapid and dynamic metamorphosis on the nation's agricultural and industrial front

Mining with mind on the future

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ppcl
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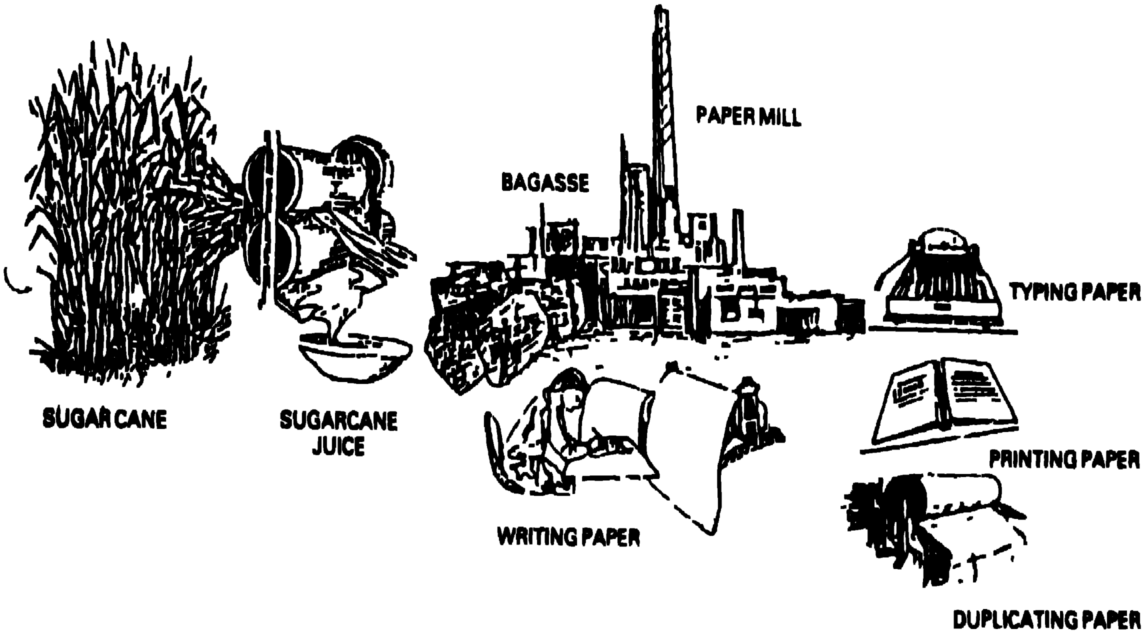

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LUCRATIVE INDUSTRIAL PROJECTS

TCG is a professional organisation which helps you in the preparation of Tecno-economic-feasability Reports, Market Survey Reports-desk or field, obtaining industrial licences & finance, technical tie-ups etc.

TCG have identified the following prolific projects having increasing domestic/export demand and have prepared Project Profiles on them:

Project	Annual Capacity	Investment (Rs Lakhs)	Cost of Report (Rs)
COCONUT SHELL POWDER *profits from waste*	500 MT	8 60	300
LATEX THREAD : *growing demand*	120 MT	26.42	300
IODIZED SALT · *carrying big boon of incentives*	37500 MT	17 40	300
ZINC OXIDE : *wide spectrum of uses in industrial applications*	300 MT	33.26	300
DAIRY FARM · *enormous potential*	50 cattles	7 70	300
SUGARCANE JUICE IN POUCHES · *a new concept in India*	81.25 lakh pouches	35 58	300
ICE CREAM · *(Rs. 70 Cr domestic market)*	150 MT	16 46	300
ACETIC ACID . *fresh capacities allowed*	1800 MT	140	300
READYMADE GARMENTS *export oriented project*	3 lakh shirts	28.50	300
ROLLER FLOUR MILL · *delicenced industry*	9000 MT	76.96	300
STEEL RE-ROLLING MILL : *enormous scope*	12500 MT	118.45	300
PRESTRESSED CONCRETE POLES & RLY. SLEEPERS *Railway Accident Enquiry Committee's recommendations for PC Sleepers & Concete Poles demand rises with rural electrification*	6000/24000 Nos.	28 17	300
ALUMINIUM EXTRUDED PRODUCTS : *effective substitute for steel & wood*	2000 MT	232	300
MICR CHEQUES & CONTINUOUS STATIONERY : *Rising demand with the growth in banking sector & in computers population*	100 Mn. Nos.	237	300
STEEL TUBES & PIPES · *increasing applications*	15000 MT	278	300
TYRE RETREADING (PRECURED SYSTEM) *preferred over hot process*	10500 tyres	30	300
MINERAL WATER *demand rises by increasing foreign tourists arrival*	40 lakh bottles	76	300

Project	Annual Capacity	Investment (Rs Lakhs)	Cost of Report (Rs)
GRANITE PROCESSING *a Tiles/Monument & Markers*	24 lakhs sq. mts /1200 MT	1400	1000
b Polished Slabs	22500 Sq Mts	140	1000
FERRO SILICON *fresh capacities invited*	10000 MT	1229	1000
AUTO PISTONS *O E. & replacement demand increasing need for additional capacities*	6 lakh Nos	640	1000
BEER *licencing permitted after 14 years*	a 20000 KL b 5000 KL	1668.25 462	1000 1000
AUTO TYRES & TUBES *exempted from licencing*	15 lakh Nos.	309 Cr	1000
FERRO-CHROME (CHARGE CHROME) . *vast scope for export*	16000 MT	1100	1000
VENDING MACHINE · *a coin operated vendor-popular in western countries & Japan and now enters Indian market*	1000 Nos	240	1000
FERRO NICKEL *entirely imported so far*	15000 MT		1000
SUGAR : *licencing procedure relaxed, now application may be submittedd directly to SIA*	44000 MT	2400	1000
LATEX EXAMINATION GLOVES : *scare of AIDS has triggered the export demand*	25 Mn Nos	162	500
MINI STEEL PLANT *need for creating new capacities*	10000 MT	181 45	300
STEEL TUBULAR POLES *lighting roads in India & abroad*	52500 Nos	45 50	300
LATEX CONDOMS *demand increased due to AIDS epidemic & emphasis on family planning*	60 Mn. Nos	151	500
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